Original Articles.

FEEBLE-MINDEDNESS AS A LEADING SOCIAL PROBLEM.*

BY E. E. SOUTHARD, M.D., BOSTON,

Director, Psychopathic Hospital, Boston; Pathologist, State Board of Insanity, Massachusetts; and Bullard Professor of Neuropathology, Harvard Medical School, Boston, Mass.

SHOULD I declare that the problem of the feeble-minded is the largest single practical problem before Massachusetts at the present day, you might be disposed to wonder how practical a person I might be. Is not insanity a larger problem? Or alcoholism? Or syphilis? Or even that narrow circle of diseases dealt with by boards of health, the so-called public health problem? Are not crime, graft, undesirable immigration, illiteracy larger problems? What also of the high cost of living, classes *versus* masses, anarchistic socialism? On still broader planes, one might pause to contemplate the lowering of moral standards, and the decay of religious thinking by the people at large. What chance has the problem of the feeble-minded with such problems as these and countless other problems of civilization?

Perhaps I may justify my declaration, which smacks at first of such superlatives as are sometimes fed to legislative committees, as follows: By "problem" I do not mean an unsolvable problem or a set of conditions working out in *saecula saeculorum*, so that, if there be a problem, it would require philosophical or even divine wisdom to solve. By problem I mean something concrete, finite, practical, a set of conditions whose dimensions and quality are known or can shortly be known, for us in Massachusetts as well as for the angels in the sky. A problem, as I somewhat narrowly use the term, means a problem for solution, a problem that can by human means be solved.

Insanity is a larger problem financially, perhaps, than feeble-mindedness. Within ten years or much less time, we shall know the comparative costs of the insane and the feeble-minded. Yet the facts of mental disease are of infinite complication beside those of feeble-mindedness. The problems, so-called, of paranoia, of Booth, of Guiteau, of Czolgosz, of Schrank; or the problems of genius and psychopathic states, of Mohammed say, or of Rousseau, or of Nietzsche, or of Roosevelt,—these problems are not to my mind as yet problems; the would-be solvers of such problems cannot agree even on definitions. We may put away as many psychopaths as we like here in Massachusetts; is any one so skilful as to catch up them all as they pass? So much of the insanity-field as, in the present state of knowledge, can be regarded as a problem is either solved or is on the road to solution shortly. Shortly we may say perhaps, as I was told in the Berlin district in Prussia, "There are beds enough for the insane; the numerical question is settled, at least for the present output of insane about Berlin." We may, it is true, need more psychopathic hospitals, that is, clearing-houses where the diagnosis can be made days earlier than by former methods and to which patients will be brought so that diagnoses can be officially made months earlier than was formerly the case. We may need sanatoria for mental cases, where people who can pay less than $25.00 a week can be safely brought through their early attacks or through conditions falling short of frank insanity. We may need extensive developments of the colony system for the able-bodied insane and of the family-care system for the harmless insane. Yet most, if not all, of these developments are officially under way and in a state to be appreciated and furthered by the interested public, that is, by the social workers. That is to say, as I see it, what the state can do has been done or is about to be done for the insane; we must now wait for science to make for us new practical issues, real problems, such as seem to be coming in the science of the nervous system at about the rate of one in five years.

You will readily see how I should logically dispose of such so-called problems as those of alcoholism and syphilis. Much of each so-called problem is in no condition for practical effort. We can readily calculate the cost and human effects of alcohol and syphilis. We lightly say they are preventive problems. But who has anything concrete and universally convincing about ways to head off the desire to get drunk and the desire for sexual intercourse when that desire has no justification in morals, art, or even pride? To be sure, the alcohol problem is being approached on its reform aspect, and a clearing-house for all alcoholics with a follow-up system for each case has been dreamed of. Yet the psychological problems lodging therein, as well as those surrounding the sex instinct, are in no condition for public propaganda. Preaching against alcohol and sex indulgence is in my experience often pointless. Drunkards, prostitutes, and their associates may present a dire "condition"; they do not promise to yield a "theory" for many years.

Those partial aspects, then, of the huge complexes of conditions which I have mentioned (alcoholism, syphilis, tuberculosis, and typhoid fever, in the public health field, crime, etc.), which have been really and seriously reduced to the simplicity of "problems" are either tolerably well met or do not in my opinion meas-

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ure up to the size of the feeble-mindedness problem. So far as insanity is understood, Massachusetts has met or is about to meet the problem well. The same may be said of alcoholism and of crime in general. The psychology of the alcoholic, the sex offender, the criminal, hardly presents the aspect of a problem. It is the same with precisely that portion of insanity that interests us most. Was Mohammed an insane epileptic? Doubtless the Mohammedans are the better for their belief in God which Mohammed drove in. Was Rousseau a madman? With more like him, education would present more real problems. Was *Also Sprach Zarathustra* indirectly an outcome of syphilis? With more Nietzsches, much more good German would have been written A melodramatic thrill runs down our backs when somebody says Roosevelt is crazy, but only on the erroneous hypothesis that "crazy" means he should be locked up. If crazy means genius, and really means it, if we knew enough about genius to say that it is a form of insanity and really think so, then to call Roosevelt crazy would be campaign ammunition for Roosevelt.

As a fact, the psychology of alcoholism, of the sexes, of crime, of genius, of many borderland and complex types of insanity is so far virtually devoid of problems in the perhaps narrowly social and practical sense in which I have applied the term.

The problem of the feeble-minded is a practical one for us for many reasons.

In the first place, our social sense concerning feeble-mindedness has been aroused. We look sharply at each other nowadays to see if we are not in some degree feeble-minded. To be a moron or high grade feeble-minded person is getting to be as common as having a Darwinian tubercle on one's ear. We look suspiciously at persons of other races and religions to see if they be not feeble-minded. Our friends even are thought often to be contracting imbecile marriages. I often excuse myself for social errors by considering that such and such factors have been left out of my composition. Even officials are interrupted in their conservative tasks by eager social workers who want something done with this or that person who ten years ago would never have been termed—with safety—an imbecile.

With this arousal of our social sense concerning the true range of feeble-mindeness has come a certain pessimism. Are we not all a little weak as well as a little queer? Are we not all fit subjects in some sense for commitment to a school for the feeble-minded, if not for commitment to a hospital for the insane? Where shall the line be drawn?

As a matter of fact, our laws concerning the commitment of the feeble-minded as concerning the commitment of the insane are effective enough. As with the insane, so with the feeble-minded, the present problems no longer touch those legal processes involving judges. Little or no doubt attaches to cases suitable for commitment by the court.

More doubt attaches to the proper fate of those considered by some as suitable, by others as not suitable, for admission to institutions without court process. The line of distinction roughly runs between custodial cases adjudged by a court suitable for commitment and what might be termed educational cases which the institution sees fit to receive as mentally deficient.

The ground for optimism here is the popularization of the Binet-Simon tests which, combined with common sense and some medical knowledge, make it possible for a comparatively inexperienced examiner to do in a short time what formerly depended on the teacher's trial and error. The intellectual educability within well-defined limits can now be safely declared for a given case by scores of workers,—scores as compared with a handful twenty years ago.

But intellect is not all. Will tests and tests for capacity to do things remain to be placed on the same plane with the Binet-Simon intellectual tests? Here is where inexperience in the examiner counts and where the off-hand Binet-Simon diagnosis of the psychologist and social worker meets shipwreck at the institution. Aside, however, from the complex and high-grade cases, where will disorder and criminal tendencies enter, the popularization of the new tests has rendered much more easily possible the winnowing of cases for the new beds which the legislature has granted and will surely continue to grant.

Psychopathic hospitals and out-patient departments, which naturally go therewith—it is a question whether every great district hospital for the insane should not support an out-patient department for these and other appropriate cases—will aid extensively in the solution of the problem along the lines of the out-patient department conducted at Waverley for many years. Already, before its formal opening, the out-patient department of the Psychopathic Hospital in Boston had had a large number of such cases brought for diagnosis—a majority, in fact, of all out-patient cases there.

What is the size of the problem? A conservative estimate in 1911 stood at 6,700. A special study now being made by Dr. William Noyes*

* A sample of Dr. Wm. Noyes' work done under the State Board of Insanity has been published in the Fourteenth Annual Report of that Board, being Document No. 63. A summary is as follows:

KNOWN FEEBLE-MINDED IN MASSACHUSETTS.

By present census:		
Males		2640
Females		2367
		5007
Reported by overseers of the poor		245
Total not in institutions		5252
In School for the Feeble-minded (at Waltham)	1497	
In Wrentham School	418	
	1915	
In State hospitals and asylums	672	
Total in institutions		2587
Total in State in feeble-minded status		7839

under the Board of Insanity, taking account of undoubted cases (so as not to cloud the issue with mental and criminalistic cases), has not approached this number as yet, but over a third of the number have been found almost at the outset by carefully guarded inquiries.

The result of such inquiries is at first sight pessimistic. I get the impression that the majority of people regard feeble-mindedness as a necessary affliction of society, classing feeble-mindedness in this respect with poverty and crime.

I have to observe in this direction that, whereas a certain minimum of feeble-mindedness may be constantly found in different societies, there is much to be said that the problem is in large part a preventive one.

I have myself of late spent much time upon the geographical distribution of degeneracy and defectiveness in Massachusetts and have to report a surprising *chiaroscuro* in that distribution. I cannot as yet assign definite values to the correlations being studied. It seems, however, that the movement of insanity and other forms of mental defect corresponds rather with the movement of physical disease than with that of crime and pauperism. The mental problems as a whole appear to be rather medical matters, to be attacked by a philosophy of prevention. The crime-pauperism complex statistically appears rather more an economic matter. There is probably a middle ground where feeble-mindedness especially approaches criminalism and where a change of economic status might be the reverse of an aid to society. Mayhap all these tentative conclusions of statistical study will be overthrown.

I should suppose, however, that statistics as a whole and the special kind of analytical statistics known as eugenics has gone far enough to prove that the social philosophy of prevention has wide scope.

To be sure, studies in Massachusetts seem to show that many a case of feeble-mindedness is due in some sense to encephalitis, congenital syphilis, or meningitis in the childhood of the case, so that the particular warnings of eugenics have not a universal scope. Still the practical problems remain preventive. It is probable that there is an interplay of hereditary and somatic factors at work in many cases, not yet sufficiently studied.

What the eugenics workers have abundantly demonstrated is the old law of assortative mating. Part of the statistical *chiaroscuro,* which shows far more defectives in some places than in others is doubtless due to such assortative mating, combined with the propinquity entailed by barriers.

Society, therefore, can readily find out statistically where to work; it can start such preventive mechanisms at work as the somewhat threadbare experiences of public health workers afford: it can thwart assortative mating of the unfit; it can educate; it can transplant; it has means of determining which persons belong undoubtedly in institutions (whatever doubt may rage in criminalistic cases); it knows where to study further; it sees a sufficiently large, if not the largest single, practical problem before it.

I will sum up and conclude as follows:—

1. The status of the feeble-minded in Massachusetts is such as to offer a large and immediate practical problem.
2. The availability of Binet-Simon and other intellectual tests makes desirable the establishment of numerous dispensary centers for preliminary diagnosis, so that cases suitable for well-tried educational methods in our state schools may be winowed out.
3. The criminalistic group has been singled out, hardly so far as a problem of the present, but as a problem of the future, dependent for solution on psychological data not yet available.
4. Estimates of the numerical size of the problem are available, and a promising preliminary survey is being made by the Board of Insanity.
5. Social sense of the importance of the problem has been aroused, though not, it may be hoped, to the point of impatience with the degree of progress humanly possible.
6. The interest of specialists in children's diseases has also been aroused, and the eventual results of certain children's diseases are being shown in the concrete case.
7. Workers in eugenics are being enlisted to study the hereditary factor in some of these so-called "acquired" cases, and, it is hoped, will solve the problem of the interplay of heredity and somatic factors in the pathology of feeble-mindedness.
8. Statistical inquiries seem to justify the idea of a *chiaroscuro* of distribution, which means that society is not just generally degenerating and that the places to begin preventive work can be chosen scientifically.
9. Statistics tend to indicate that the problem is rather a medical than an economic one, or perhaps better, more medical than economic, standing a bit one side perhaps from crime, some part of which is economic.
10. The interplay of hereditary and somatic factors promises to show lines of prevention both eugenic and environmental.
11. We can educate communities in eugenics and we can conceivably transplant, by a proper family-care system, feeble-minded persons from neighborhoods where they would unite with others of their kind to regions where they would either not marry or would marry normal persons, thus diluting the strain (feeble-minded males are probably less dangerous in the community than feeble-minded females, which latter should be segregated by preference in institutions).
12. Socialism of the Fourier-Marx type will have to reckon with this problem; it would not appear that communism has any ready solution

for the problem of those who, being feeble-minded, are by nature neither free nor equal. On the other hand, some form of socialism of the St. Simon type, or what may be termed state socialism, is the most practicable form to cope with this problem. Indeed the practical solution of these problems of feeble-mindedness and allied defects is fast leading us to something of the sort, whether we choose to call it socialism or not. Yet how many would-be socialists face the congenital or acquired inequalities of men with frankness and clear understanding?

UNDER WHAT CONDITIONS IS THE DIAGNOSIS OF "TUBERCULOSIS" IN CHILDREN JUSTIFIED?*

BY JOHN B. HAWES, 2ND, M.D., BOSTON.

THE question raised in the title of this paper is an important and pertinent one. There are many who believe that the theory of childhood infection is being carried too far. However opinions may differ as to this, everyone will agree that the diagnosis and treatment of tuberculosis in childhood is one of the most important, if not the most important problem, not only in tuberculosis and its prevention, but in the entire field of preventive medicine. The children of today are the men and women of tomorrow; the weak and sickly children of this decade are the consumptives of the next, whether or not scientists still wrangle over the problem of the path and the exact time of infection. It is, therefore, urgently necessary that some definite standard be adopted and recognized by every one as to the exact signs and symptoms, or group of signs and symptoms on which it is just to make such a diagnosis. Of course I do not refer in this paper to children with advanced pulmonary tuberculosis, with or without a positive sputum.

It is indeed a step which demands the utmost consideration to stamp a young child as tuberculous and to cast on him and on the family the stigma, however slight this may be, that the name carries with it. Tuberculous infection is one thing,—tuberculous disease is another. Statistics, based on careful pathological investigation, as well as on the results of tuberculin tests, offer clear proof that a large proportion of children, 60% to 90%, according to different observers, are infected with tuberculosis by the time the fifteenth year is reached. This does not mean tuberculous disease, or what we generally term "clinical tuberculosis." Many of these children, indeed the great majority, are perfectly well and without symptoms. How to recognize and do justice to the comparatively small proportion in whom the disease is active and is causing symptoms, what should be their treatment, and how radical steps should be taken in reporting and segregating these patients are most important and ever-present problems.

In Boston, and I presume elsewhere, there is at the present time a great diversity of opinion among doctors at the various clinics as to diagnosis and treatment of this class of children. It is perfectly possible for an anxious mother to take her small boy of ten to one large clinic and be told that he has consumption and must (and is made to) leave school; at the earliest opportunity she takes him to another clinic where the boy is again examined by equally skillful and conscientious physicians, who tell her that her boy has a cold, but certainly has not "consumption." Much relieved, but still anxious, she takes him to a third clinic, where an x-ray of the chest is taken. This discloses a few "bronchial glands and peribronchial thickening with a slight haziness at the right apex." The x-ray expert reports his diagnosis as "Bronchial Glands. Ph?" Exactly what this means may be, but usually is not, explained to the mother, and in any event, as can be readily imagined, fails to relieve her worry over her boy. And so the case drags on, the mother naturally (and quite properly) refusing to allow her son to be sent to a sanatorium or hospital for consumptives, and the physicians at one, at least, of the three clinics visited, still firm in the belief that here is a case of tuberculosis which needs radical treatment.

The following case is a striking example of this state of affairs:—

L. R., a little Armenian girl of 7, living in the thickly settled Armenian quarter, was sent to me for examination from one of the settlement houses of that district. There was a doubtful history of exposure from a grandmother, who had recently died of tuberculosis, and from a brother in whom such a diagnosis had been made, but later not substantiated. The exposure from the grandmother was also eliminated as a factor, to my satisfaction at least. The child had been examined on the morning of the day she was sent to me at a local tuberculosis clinic by two leading authorities in tuberculosis in this city, and pronounced tuberculous on the following evidence. Cough at night, morning temperature, night sweats, and history of exposure,—the last somewhat doubtful, as shown above. Examination at this clinic showed "a definite active process at the right apex, with a limited right basal expansion and well-marked signs of bronchial glands." The mother was told that her child had consumption, and that she must leave school. My examination in the afternoon showed a strong, well-developed and nourished, healthy-looking child. The tonsils were very much enlarged,—sufficiently so to account for any cough or fever which she might have at night or any other time. In the lungs aside from very slightly increased signs at the right apex, I could find nothing abnormal in any way. No râles were heard at any time.

* Read before the New England Pediatric Society, March 27, 1914.

The d'Espine sign was negative. There were no glands. One tooth was carious. I definitely committed myself in writing as being unable to find any evidence of active or clinical tuberculosis in this case, and that I could see no reason why she should not go to school.

A few days later the child was taken to the children's department of another large general hospital, where she was carefully examined by several leading pediatricians, and where I again went over her. Here, in the morning, she had a slight temperature of 99.2°. The lungs were pronounced negative. The d'Espine sign at this visit was negative. A careful skin tuberculin test, done at two separate occasions, was entirely negative each time. An x-ray was taken which was inconclusive, while a later one showed a few enlarged bronchial glands. At this later visit also the child had a cold, and the d'Espine sign became a positive one until the cold subsided, when it returned to normal limits.

The case was not considered one of clinical tuculosis.

Later the child was taken to another dispensary and pronounced normal. The mother, naturally enough, has refused to take her to any more doctors, but is still greatly worried over the question as to whether or not her child has consumption.

This case represents an unfortunate state of affairs. Others similar to this are not uncommon, and are bound to increase as time goes on, unless some definite standard is reached and agreed upon by all. The physicians who saw this patient, whether they regarded her as a case of tuberculosis or not, were sincere in their desire to do what each thought was right; treatment advised was practically the same at the different clinics visited, except that one group of doctors thought that the child's condition warranted the use of the term "tuberculosis," while the other group did not. The two negative von Pirquet reactions in a child of seven are the only features which those who took the more radical stand must find it hard to satisfactorily explain.*

Everyone will agree that the diagnosis of early tuberculosis in children (advanced pulmonary disease offering no difficulties in diagnosis) must be based on:

(*a*) Bad family history or a history of exposure to tuberculosis.

(*b*) Constitutional signs and symptoms, such as fever, rapid pulse, loss of weight and strength, malnutrition, debility, undue fatigue, anemia, frequent protracted "colds," etc.

(*c*) Local signs and symptoms referred to the lungs, such as cough, often paroxysmal, dry, throaty or even brassy, usually without sputum, hoarseness, unequal pupils, slight substernal dullness with high-pitched intense expiration and whispered voice at the right apex, intense bronchial whispered voice over the spine lower than the third or fourth dorsal vertebrae (d'Espine's sign) and rarely paravertebral interscapular dullness.

(*d*) Evidence of enlarged bronchial glands as shown by the x-ray.

(*e*) A positive tuberculin reaction.

Any child who has constitutional and local symptoms, a positive tuberculin test and confirmatory x-ray evidence, should quite justly be considered as a case of active clinical tuberculosis and be so designated and treated. This is easy enough. The great difficulty lies in the fact that "type" cases are rare, and that in 99% of such children the physician must base his diagnosis and treatment on much less than the above-mentioned symptom complex; he must "size up" and accord their value to the symptoms as they present, balancing in his mind what is lacking here against what is present elsewhere, and finally, he must base his decision on the picture he has so formed. His decision in each case should answer the following questions:

(*a*) Has the child tuberculosis?

(*b*) If so, is tuberculosis the cause of the present symptoms?

(*c*) Is the child a danger to the community?

(*d*) Does he need radical, aggressive treatment in a sanatorium, hospital or other institution for consumptive children?

(*e*) Should he be definitely considered as a case of tuberculosis, reported as such, and his parents or relatives informed of this fact?

(*f*) If not, how can he be kept under supervision and control, and should he be removed from school?

(*g*) If he is taken out of school, what do you offer in its place?

(*h*) If he has not tuberculosis, what is the matter with him, and what are you going to do about it?

What, then, is the relative value of the various points mentioned above, on which the diagnosis must rest? The first, a bad family history or exposure to tuberculosis, is an important factor, if present, but one whose absence need not interfere with a positive diagnosis. While it can be said that for all practical purposes, tuberculosis is not inherited, there is no doubt but that weak constitutions and a lessened resistance to tuberculosis may be and often are inherited. In regard to exposure to tuberculosis, the weight to be given this point depends on the length and intimacy of such exposure. These points should be carefully investigated in every case.

Next in order come the constitutional signs and symptoms. In my opinion, a diagnosis of early clinical tuberculosis in childhood is rarely justifiable, unless such constitutional signs and symptoms are present. Without these, except in very occasional instances, no matter what the x-ray may show, and what the signs in the lungs may indicate, I doubt if it is safe or just to stamp the case one of consumption. On the other hand, I have many times made such diag-

* It is interesting to note that a recent von Pirquet test gave a positive reaction. This may or may not mean that the patient was sensitized by the two former ones.—J. B. H.

noses and occasionally sent children to a sanatorium on constitutional signs alone. There is no field of evidence which better repays careful study than this.

Third in the symptom-complex, I have placed signs and symptoms referred to the lungs. Cough and sputum speak for themselves, and have many causes other than tuberculosis. Marked dullness, râles, etc., are easy enough to find, and require no special skill. The detection of finer shades of dullness, or rather diminished resonance, resistance under the finger, the significance of harsh or puerile breathing, prolonged high-pitched expiration, bronchial whispered voice, substernal and paravertebral dullness, require long experience, constant daily practice with such cases, and the greatest of skill to interpret properly. At present much weight is placed on a positive d'Espine sign. When we analyze what this sign really means, we find that it simply suggests that something is present which transmits the whispered voice and breath sounds from the trachea and larger bronchi through to the dorsal vertebrae at a lower level than is usually the case in normal healthy children. It has been taken for granted that this "something" is usually enlarged bronchial lymph nodes, and it has been further taken for granted that these enlarged lymph nodes are necessarily tuberculous, and further still, that they must be the cause of the child's symptoms. All these hypotheses are interesting if true. I do not think that we yet fully understand just what this phenomenon really does mean. It has been found present in perfectly normal individuals a sufficient number of times to show that, like a tuberculin reaction, while it may mean infection, does not always mean disease; again, it has been found present following various acute diseases, especially measles, often enough to show that it does not always mean tuberculosis. I am strongly of the opinion that further investigation must be made before we can attach much significance to a positive d'Espine sign alone as pointing to a tuberculous infection.

Coming to x-ray evidence, here again we are dealing with something which taken alone is not of great value, but which in conjunction with other features may be of grave significance. It must be remembered at all times that the x-ray picture is one of lights and shadows; that such evidence is dumb, and cannot tell us whether the shadows of the glands we see in the picture mean tuberculosis or not, and, if the former, whether the infection is old or recent, active or latent. Whenever possible the x-ray should be interpreted by an expert and by one who recognizes the limitations of his specialty. Such men do exist, but they are rare.

Finally, what does the tuberculin test offer us in such cases? To me the answer is clear and definite. A negative skin tuberculin test (the only one which should be used in children), in the absence of factors which might cause a negative reaction, if carefully performed and confirmed by a subsequent negative reaction, is as good evidence as there is that tuberculosis can be ruled out. A positive test is not so conclusive, but, like the x-ray, is only a small bit of confirmatory evidence to be taken in conjunction with other features of the case.

In conclusion, then, in answering the question asked in the title, "Under what conditions is the diagnosis of 'tuberculosis' in childhood justified?" I would state my opinion as follows:

1. Let it be clearly understood that by the term "tuberculosis" I mean clinical tuberculous disease which presents a definite picture and which requires definite treatment.
2. In the absence of advanced tuberculosis or a recent infection with some acute disease which might cause a negative reaction, a diagnosis of tuberculosis is rarely justified unless there is a positive skin tuberculin reaction.
3. Constitutional signs and symptoms are usually present and require careful study and investigation. If such symptoms are absent, a definite diagnosis is unwise, although this should not interfere with placing the child under proper treatment.
4. Signs referred to the chest and lungs are of interest and value, if present; if absent, their absence should not preclude a definite diagnosis. If present without constitutional disturbance, look out for chronic influenza and pneumococcus infections.
5. Positive x-ray evidence is of value in conjunction with other evidence. Diagnoses based on the x-ray alone are apt to be wrong, and are unjust to the patient.

THE CAUSES AND THEIR RELATION TO THE TREATMENT OF LATERAL CURVATURE OF THE SPINE.

BY Z. B. ADAMS, M.D., BOSTON.

MANY will remember the work on numerical variations of the spine done by Dr. Max Böhm. He made the statement that the upper surface of the sacralizing vertebra might be tipped and thus cause scoliosis. This may rarely be true. Some three years ago in checking up this work of Dr. Böhm the conclusion was reached that so far as the cause of scoliosis is concerned, lesions of the articular processes were of far greater importance than asymmetrical sacralization.

The x-rays of any clinic show that asymmetrical sacralization is of frequent occurrence in cases radiographed for pain in the back, or loin, etc., where no scoliosis existed. The Dwight collection of spines bears this out for it contains many examples of asymmetrical sacralization, but few of scoliosis. In the few with scoliosis, a lesion of an articular process is present and the transverse processes are normal. There is one

spine, however, which has scoliosis and one broad transverse process, but there is in that spine an absence of the left posterior centre of ossification, of the first sacral segment, which seems the cause of the scoliosis, rather than the broad transverse process.

There are a few pertinent facts to be noted regarding the spine and the base on which it rests.

The column of centra and intervetebral discs obeys the laws of physics for flexible rods. The motions are somewhat limited in certain directions by the shape of the vertebral bodies. By the attachment of ribs and posterior columns *i.e.* the columns of articular processes, the motions of this flexible anterior column are still further limited; they not only govern the motions, but in extension their articular facets are in close contact and they share in the function of weight-bearing. The support of the column is then tripedal. In moderate flexion their surfaces are separated and motion is most free.

The usual ossification of a vertebra is from three primary centres, one for the centrum and one for each lateral mass. In a certain number of individuals the fifth lumbar vertebra is laid down by five centres of ossification instead of three, the posterior lateral mass being divided into two parts. One part forms the pedical, transverse and superior articular process and the other part the inferior articular process, lamina and one-half the spinous process. Sir William Turner has found that in five per cent. of all subjects the posterior part fails to fuse with the anterior part of the lateral mass.

The facet on the upper surface of the sacrum on which the spine rests, faces downward and forward, and in the average female has an inclination downward from the horizontal of forty degrees, and in many individuals this inclination is much greater. The under surface of the fifth lumbar vertebra faces downward and backward, hence, by a forward movement of this body on one side, that is, a rotation of one surface on the other, a lateral tilting of the base occurs. At forty-five degrees of inclination, a movement forward of one-fourth of an inch gives a drop of one-fourth of an inch.

The only bony obstacles to this one-sided spondylolisthesis are the articular process on the top of the sacrum and the inferior articular process of the fifth lumbar vertebra, which are not attached to the vertebra in one out of every twenty subjects. Nowhere are bony anomalies more frequent than in the low lumbar spine and in the sacrum.

The ligamentous supports are the anterior and posterior common ligaments, the intervertebral disc, the ilio lumbar and lumbo-sacral, the interspinous and superspinous, the capsular and subflavel ligaments.

When there is an overgrowth, underdevelopment or deformity of the articular processes, one of the legs of the tripod of support of the spine becomes longer or shorter or unstable. We then have a condition analogous to a camera on a tripod, with one short, long or loose leg.

From an analysis of the twenty-two cases in the scoliotic clinic, of which careful x-rays, many of them stereoscopic, have been taken and interpreted, the results are as follows:—

They are not 22 selected cases which show interesting x-ray lesions, but are all the cases of which we have thus far been able to get good x-rays.

The following list, consisting of four boys and eighteen girls, comprises 2 dorsal cases, 4 between the fourth and fifth lumbar, 14 lumbo-sacral, 1 sacral and 1 infantile.

Deformed third and fourth dorsal vertebra (Bell).

Slipping of seventh on eighth dorsal vertebra (Thomas Judge).

Deformity of right inferior articular process, fourth lumbar (McBride, Case I).

Distortion of right superior articular process, fifth lumbar (Pearson, Parmenter, Connors, broad wing).

Faulty fusion of left inferior articular process of fifth lumbar (Cate, Tuttle, Oakley, White, Gordon).

Faulty fusion of left pedicle with body of fifth lumbar (Morrison).

Spina bifida of first sacral segment, sacral articular processes asymmetrical (Guillette, Moore, Kelley, Shapiro, Neilly).

Overgrowth of right superior articular process of sacrum (Swartz).

Absence of neural arches throughout sacrum, its articular processes diminutive (Callahan).

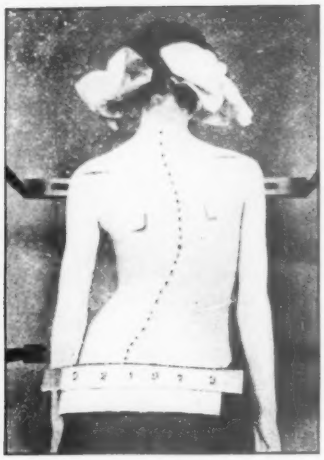
Failure of first posterior segments of sacrum, first sacral centrum deformed (Briggs, Case 2). Faulty fusion of second and third sacral segment on left (K. Judge).

Infantile paralysis, no deformities (Hadgi).

Treatment. The relation of these findings to treatment are as follows:—

From the time of Hippocrates, and perhaps before, various racks, ladders and frames have been used in an effort to reduce or correct the deformities of scoliosis. The deformities often are made worse, or if temporarily corrected they recur. The lateral deviation has been improved in some cases at the expense of an increase of the rotation. Many times the scoliosis is attacked with no regard to the cause of the deformity.

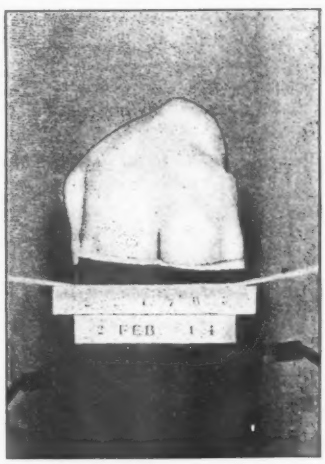
The flexed position, as employed by Drs. Forbes and Abbott, is an undeniable advance, it relaxes the spine with the articular processes separated, thus allowing the freest possible motion. In no other respect are their methods similar. Abbott pulls with the old brute force, in the same direction which has been found in the past, when the spine was locked in extension, would increase the rotation. Forbes, with a thoroughly scientific method based upon a careful research into the physiology of the human spine and the spine of a scoliotic, rotates his case in



CASE I. McBride.

CASE II. Briggs.

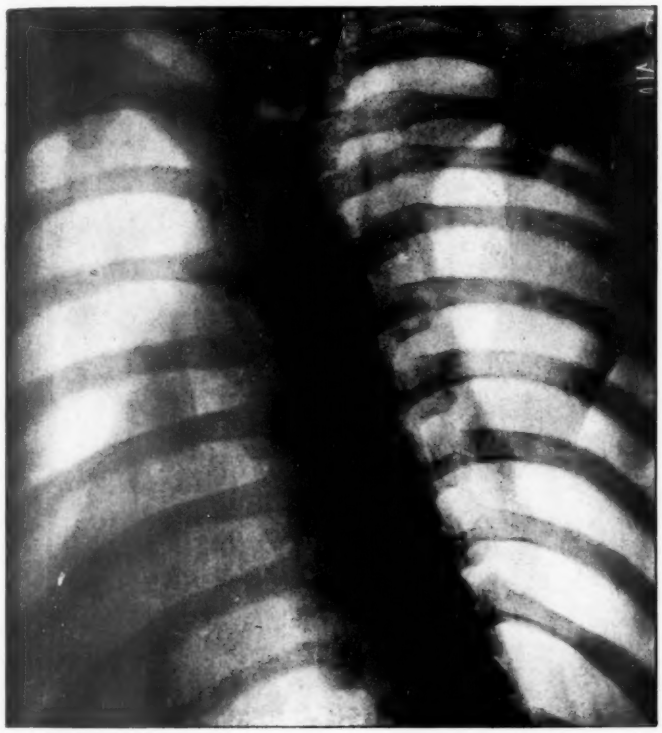
CASE I. McBride.



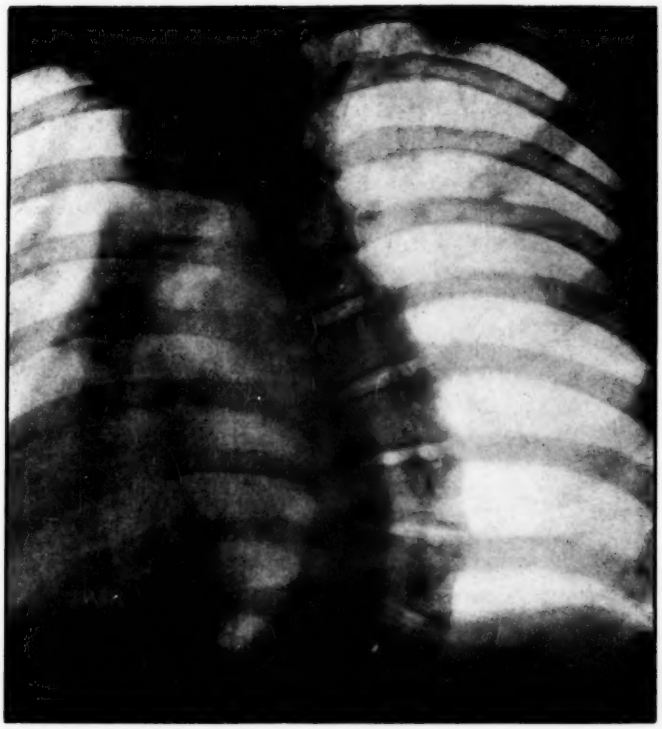
CASE II. Briggs.

CASE I. McBride.

CASE II. Briggs.

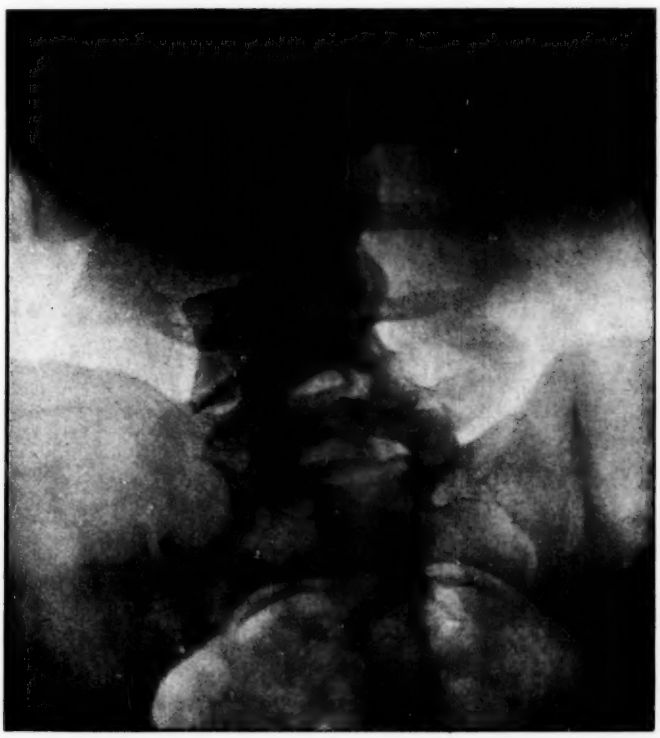


CASE I. Upper Spine.



CASE II. Upper Spine.

CASE I. Lower Spine.



CASE II. Lower Spine.

CASE I. Albino McBride, age 14. July 17, 1913. (First visit O. P. D.)

Curve noticed in April, 1913, by school physical training teacher. Bad posture not noticed before this. Diagnosis: *Scoliosis,* right lower dorsal; left lumbar. Right inferior articular process of fourth lumbar is underdeveloped.

CASE II. Ernest Briggs, age 17. August 21, 1913. (First visit O. P. D.)

Complaint: back and chest. Duration: four years. Cause: ? fall.
Present symptoms: pain on lifting. Diagnosis *Scoliosis.*

"Four years ago fell about 30 feet, striking on his side and back and apparently not hurting himself. About three years later he began to notice that he was getting humpbacked and began to have pain in his back. Pain began a short time before deformity was noticed. The pain is only present when he lifts or bends forward."

"Examination shows very well marked degree of scoliosis."

The pelvis is not rotated for the spines of the ischii show evenly. The lower sacrum is but slightly rotated. The neural arches are imperfect throughout the sacrum and the first sacral segment is imperfect and rotated to the left, and its articular processes unevenly distributed from the middle line. Fifth lumbar vertebra rotated to left and tip forward and to the left.

exactly the opposite direction from Abbott, and all other operators. The two methods are diametrically opposed to one another, hence cannot be combined. Strangely enough, either method may correct, and overcorrect in certain cases. In certain cases one method is better than the other. Can we not say that in certain cases relapse will occur and in certain other cases that neither method will correct?

The x-ray findings show that some of these cases cannot be corrected by any method until a bony obstacle is removed surgically. Some of them if they are corrected will certainly relapse unless the defective articular processes are locked together.

Where one side of the fifth lumbar vertebra has slipped forward it must be fastened back in place or it will again slip forward. In the cases where there is a double rotation, the fifth lumbar vertebra rotated to the right, the fourth rotated to the left, the condition cannot possibly be corrected by any method of lateral pulling or rotation.

In cases where there is faulty fusion of the neuro-central suture the fifth lumbar body must be surgically pinned to the sacrum. There is no harm in sacralizing the fifth lumbar body.

Many of the cases due to deformity of the sacrum may be inoperable and best treated by a supporting corset to transmit part of the weight of the body trunk to the iliac crests.

Another fact brought to mind is the danger of treating some of these cases by head suspension, which increases the forward inclination of the pelvis, hence the tendency of the fifth lumbar body to slide forward on the sacrum.

Where the defect is in the articular process of the sacrum or fifth lumbar, these children should be taught to sit with a rounded lower back and stand in the flat-backed position, for this will keep the sacrum under the spine.

CONCLUSIONS.

1. A careful x-ray study in each case is indispensable before treatment.
2. Fourteen of the twenty-two cases in the clinic show a congenital lesion at the lumbosacral junction.

The fact that the age (ten to fourteen) when the anterior lumbar curve becomes constant, is the age when scoliosis develops in a large number of cases is interesting. At this age the weight of the upper trunk is increasing most rapidly and the epiphyses of the iliac crest have not appeared.

The vertebral sacral angle varies widely, but is great in females.

The increased tipping throws greater strain (both downward and forward) on the articular processes, and as the angle of inclination increases the horizontal thrust becomes more vertical and the strains tend to unite. Hence, when these processes are defective scoliosis develops.

3. Many of the cases should be operated on either before correction is attempted or after correction is obtained.
4. A knowledge of the character of the lesion allows a prognosis.
5. This knowledge explains some of the many failures of the past.

It is obvious that in this paper some of the true causes of scoliosis have not been mentioned, but from an inspection of the cases in our clinic attention has been drawn to some of the very frequent causes hitherto overlooked.

NITROGENOUS METABOLISM IN A CASE OF CHRONIC MYELOGENOUS LEUKAEMIA.

By Harry W. Goodall, M.D., Boston,

Assistant in Biological Chemistry, Harvard Medical School; Associate in Medicine, Peter Bent Brigham Hospital; Physician to Boston Dispensary.

In any condition associated either with a considerable increase in the number of leucocytes in the blood or with the destruction of large numbers of leucocytes, such as occurs in Leukaemia, it would be expected that such a change might be indicated by the excretion of urinary nitrogen and more especially by the uric acid nitrogen, in as much as leucocytes are bodies rich in nucleins.

From a review of the rather extensive literature of the subject, it is to be concluded that during the ordinary course of the disease the total urinary nitrogen, as a rule, correspond closely to the protein of the diet and the excretion of uric acid varies only within normal limits. During periods of rapid leucocyte formation or more especially during periods of rapid leucocyte destruction the change may be indicated by the nitrogen output but this is by no means the rule. When such a change does occur it is especially indicated by the increased output of uric acid. No definite relationship, however is found to exist between the number of leucocytes and the quantity of uric acid excreted.

Instances are recorded in which periods of marked leucocyte destruction are accompanied by a diminished or normal excretion of uric acid as well as an increased excretion. Even the rapid dissolution of leucocytes following x-ray exposure may not influence the urinary nitrogen. These varying results have been explained in part by the supposition that there is a retention of some of the intermediary bodies for the purpose of forming new leucocytes and in part by the supposition that the destruction of nuclein is carried beyond the stage of uric acid. In a large measure, however, the variations are to be explained by the shortness of

the period of observation and the failure of the observer accurately to determine the food intake.

In the following case special attention was given to the food intake. The "starch and cream" diet employed by Folin in studying the urine of normal individuals was selected since it is practically free from protein, and fulfills the caloric requirements. At the same time it permits of comparison with normal protein metabolism. The case is of special interest inasmuch as the patient was passing through a period of rapid leucocyte dissolution during the time she was under observation.†

Briefly, the case is that of a Jewish woman, 32 years of age, with a typical myelogenous leukemia which had existed three and a half years previous to this study. For two months, the time previous to and including the period of this observation, she was given Coley toxins nearly every day.

On June 7 (see table below) she was given the "starch and cream" diet for a period of seven days. Previous to this there had been no change in the leucocyte count, but during the period of observation there was a pronounced and rapid fall. It is probable that this fall was entirely independent of the diet, since a second case of leukemia placed under exactly the same conditions failed to show any decrease in the number of leucocytes. Unfortunately the results of the second case are valueless, owing to mistakes in collecting the urine.

Date.	Leucocyte count.	Vol. urine.	Total N.	Uric acid.	Uric acid N.	Per cent uric acid N.
May 31	161,600					
June 7		1815 c.c.	9.9 gm.	0.72 gm.	0.24 gm.	2.5%
June 8		2055	6.2	0.65	0.22	3.5%
June 9	29,800	2676	3.1	0.99	0.33	10.6%
June 10	18,450	1920	7.3	0.74	0.25	3.4%
June 11	14,700	1790	6.1	0.32	0.11	1.8%
June 12		1690	5.9	0.68	0.23	3.9%
June 13	9,550	1500	7.1	0.78	0.26	3.6%
Total			45.6 gm.	4.88 gm.	1.64 gm.	
Daily average			6.5	0.69	0.23—	3.6%
Normal average			5.2	0.33	0.11—	2.1%

The methods employed in making the determinations are those described by Folin.

Subsequent History. Toxins were continued for one month after these observations were made, at the end of which period the leucocytes counts reached a minimum of 3,300. After the omission of the toxins the leucocytes began to increase and reached 45,000. The patient developed a membranous stomatitis and broncho-pneumonia and died in about ten weeks after the end of the period of observation.

In comparing the average daily excretions with the normal there can be no doubt as to a considerable increase in the output of total urinary nitrogen and of uric acid. This increase is more clearly seen if we compare the total excretion of the last six days, the first day being omitted because of its close dependence upon the protein in the diet of the day previous, with four of Folin's normal urine at a corresponding period.

	Total N.	Uric Acid N.
Leukemia case	35.7 gm.	1.40 gm.
Normal person	32.9 gm.	0.70 gm.
Dr. H. B. H.	32.3 gm.	0.59 gm.
Dr. E. A. S.	24.2 gm.	0.56 gm.
Dr. Aug. H.	30.1 gm.	0.82 gm.

Analysis of the table brings out two points of special interest; first, that the daily excretion of uric acid N. shows a wide range of variation, 0.11 gm. to 0.33 gm. without any constant relation to the total nitrogen, and secondly that the day (June 9) when the largest quantity of uric acid was excreted the minimum quantity of total nitrogen was excreted. This suggests the possibility of some error, especially so inasmuch as the urinary nitrogen does not normally sink to this low level with this diet as early as the third day, but constant results were obtained with repeated determinations. It is interesting to note, in connection with the increased nitrogenous metabolism, that the daily quantity of urine excreted was approximately a little in excess of the quantity excreted by normal persons on this diet, and that on the particular day in which the disturbed relation between the uric acid nitrogen and the total nitrogen was the greatest an excessive quantity of urine was passed.

An inference from these observations relative to the metabolism during rapid leucocyte destruction would favor the hypothesis that the destruction can be carried beyond the uric acid stage.

Such a supposition would explain the marked variations which are here shown. Retention for the purpose of new leucocyte formation, while possible, seem improbable in view of the fact that the white count continued to fall and that no increased was noted within four weeks after this period of observation.

† I am indebted to Dr. Ralph C. Larrabee for the privilege of undertaking the study and for the leucocyte counts herein tabulated.

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AURAL VERTIGO.*

By D. Harold Walker, M.D., Boston.

The subject of aural vertigo was first brought to my attention by coming in contact with a remarkable family, eleven members of which, during four generations, were affected with vertigo of the apoplectic type. This series I reported in the Transactions of the American Otological Society in 1910. Since that time I have observed a number of similar cases, and recently I had the opportunity of attempting the relief of the distressing symptoms by operation, upon a case kindly referred to me by Dr. Clarence J. Blake.

Aural vertigo is a symptom common to a number of affections such as the more or less transitory vertigo, due to toxaemia, to gastric, or to ocular causes; but at this time I wish to discuss the form of vertigo which is often called Pseudo-Meniere's disease. It is an affection that occurs most commonly in persons of middle age; persons usually healthy in every other respect, the attacks occurring at almost any time, often with no regard as to whether the patient is active or at rest.

That the labyrinth is a closed cavity is the opinion of all observers. Although there are the aquaeductus vestibuli and the aquaeductus cochlae, they are not patent for the free passage of fluid, according to the researches of Schwalbe and Schonemann. The aquaeductus vestibuli contains the ductus endolymphaticus. which ends in the saccus endolymphaticus, an organ which has long been overlooked, yet a constant in all animals where hearing is a sense. One cannot here enter into a description of the important part it plays in the lower animals, nor its prominence in the development of the human ear.

Suffice to say that it is always present, and from the experience of Kummel, its preservation is necessary for hearing.

When one appreciates the extreme sensitiveness of the equilibrium, which must be maintained in the labyrinth to enable the perception of delicate sound waves, it is reasonable to believe that, if there were an intimate relation between the cranial cavity and the labyrinth, the constantly varying intracranial pressure would destroy that equilibrium. The experiments of Lafitte-Dupont showed that variations in intracranial pressure cause similar changes in arterial pressure. Also, the yet unpublished work of Dr. Ayer of this city shows the enormous variations, which may occur in intracranial pressue, and that the withdrawal of varying amounts of cerebrospinal fluid does not, necessarily, cause vertigo or deafness.

It is a recognized fact that there exists in the organism, in the normal state, an energy or a principle which determines and preserves the amount of fluid in serous cavities. This is true whether it be the pericardial, the pleural or the cranial cavity, the eye and probably the labyrinth. If the venae Galeni in the brain becomes closed, hydrocephalus results. If the canal of Schlemn is closed, glaucoma is the result. Is it not possible that pathological changes may occur in the labyrinth, causing an increase in pressure, and vertigo be the result?

It is generally admitted that true apoplectic vertigo is caused by increased labyrinthine pressure, and this belief is justified by the fact that what relief has been obtained has been through agencies which cause either a lymphatic or a circulatory depletion, such as pilocarpine, adrenalin, purgatives, lumbar puncture, the use of setons or, by the surgical destruction of the labyrinth. Again the theory is strengthened by the results of the removal of the stapes, with a transient relief of the attacks of vertigo, and the recurrence of attacks after the foramen ovale has become closed.

Patients affected with this type of vertigo nearly always have diminished hearing, to a greater or less degree. This is true without respect to age. In the cases which have come to my attention, there is little objective evidence of middle ear change, so that the conclusion drawn is that there is a degree of osseous change, which in the first place would destroy the extrinsic mechanism for the control of labyrinthine pressure, as shown by Blake and Wales. Secondly, is there any reason that the process be limited to that portion of the labyrinthine capsule? Could not that osseous change involve the region of the aquaeductus vestibuli, causing a cessation of any function the saccus endolymphaticus may have, acting as an intrinsic organ of equilibrium? Also, could not that same change affect the lumen of the aquaeductus cochlae and of the aquaeductus vestibuli, resulting not only in impeded drainage, but possibly in a passive congestion, by retarding the venus flow? If the foregoing suggest a possible hypothesis, it would explain the reason for the gradual increase of pressure, until a maximum is reached where relief is obtained by a sudden decrease in tension, due to the forcing of fluid through the lymph spaces in the aquaeductus cochlae or a rupture of some part of the membranous labyrinth. The sudden lowering of the labyrinthine pressure would occasion the apoplectic attack of vertigo.

Attacks would recur when the anatomical conditions were reestablished, and after a period of time depending upon the rapidity of internal secretion.

The case I wish to present is that of a man about thirty-five years of age. Previous history of any affection of importance is negative. Habits good. There has been a gradual decrease in hearing, with tinnitus, for several years. The first attack of vertigo occurred eight years ago; since then they

* Read before the International Otological Congress, Boston, August, 1912. Received for publication March 20, 1914.

have varied in severity and are often accompanied with nausea and vomiting. No noticeable change in the tinnitus after an attack. The usual therapeutic measures were of no avail, and lumbar puncture, with the withdrawal of from 15 to 20 c.c. of fluid was performed six times without any relief. I may add that there were no unpleasant after-effects due to the withdrawal of the fluid. The hearing is as follows:

RINNE TEST.

RIGHT.	LEFT.	
25″ a.c.	20″ a.c.	35″ Blake fork used, 256 v. d.
10″ b.c.	8″ b.c.	12″

$\left.\begin{matrix}35'' \\ \hline 12''\end{matrix}\right\}$ = Normal.

d. v. 128 c low limit c.
d. v. 8128 c high limit c monochord, same for a.c. and b.c.

Whisper heard in the right ear at a distance of 6 feet, and a low spoken voice heard in the left ear at a distance of 1 foot. Blood pressure about 135 mm. of Hg. Spinal pressure 30 mm. Because of extreme vertigo, vestibular tests were not performed. It was desired to preserve the hearing, if possible, and it was decided not to do the complete labyrinth operation as performed by Lake, but to destroy the ampullae of the horizontal and the posterior semi-circular canals, without destroying the cochlea. The usual antrum operation was performed, exposing the external horizontal canal. The cortex was partially sclerosed and very vascular. Whether the vascularity was indicative of an osseous change is questionable. The antrum was enlarged sufficiently to allow access to the vestibule without doing a tympanomastoid exenteration. The right semi-circular canal was entered with a dental drill, with absolutely no flow of perilymph as a result.

The vestibule was gently curetted through the anterior limb of the horizontal canal, and the lower limb of the posterior semi-circular canal was followed into the vestibule with a curved probe. The wound healed by first intention, and the patient was discharged from the hospital in about ten days. There was no tympanic reaction from the operation. There was marked lateral nystagmus towards the affected ear. I have not seen the patient recently, but he states in a letter that he had returned to work, that the vertigo had disappeared, but that the tinnitus persists, and that he staggers when he walks. As the operation was performed but eight weeks ago, it is probable that compensation has not yet been established.

The fact that true aural vertigo causes such great prostration and is such a great inconvenience to the sufferer makes it essential that we do all that is possible to alleviate the symptoms or cure the affection. In mild cases, where there is a more or less constant feeling of disturbed equilibrium and fear of impending attacks, depletion in the various ways in which it has been practised, as reported in literature, is recommended. Randall proposed in 1902 the use of small doses of adrenalin, as a capillary depressent, and his results have been very favorable.

Lumbar puncture, as first performed by Babinski, the French observers as reported by Molard, and by Blake and Putnam, should be tried. There is no doubt but that in certain cases alleviation and even complete relief has been effected by lumbar puncture, with the withdrawal of the fluid, and if done fairly soon after an attack, the labyrinthine pressure might be sufficiently reduced to give immunity from future attacks for a long time.

In just what way lumbar puncture may effect the intra-labyrinthine pressure is not known. In the above case it was performed six times with no effect upon the symptoms. The fact that there was absolutely no flow of the perilymph at the time of operation is in accordance with the theory of the closure of the aquaeducti. Dr. Ayer in the work already mentioned, performed lumbar puncture upon a series of about twenty cases and in one case only was there a complaint of temporary deafness and slight vertigo. The symptom most common to all was more or less headache. It is reasonable to suppose that withdrawal of any amount of fluid from the cranial cavity, in normal persons, would be immediately reformed. It is possible, that where beneficial results are obtained, they are probably due to a permanent lowering of the hypertension of the cerebro-spinal fluid.

In most severe forms of the disease, destruction of the labyrinth, as first performed by Milligan and later by Lake, seems to be justifiable.

REPORT ON LEUCOCYTIC INCLUSION BODIES.*

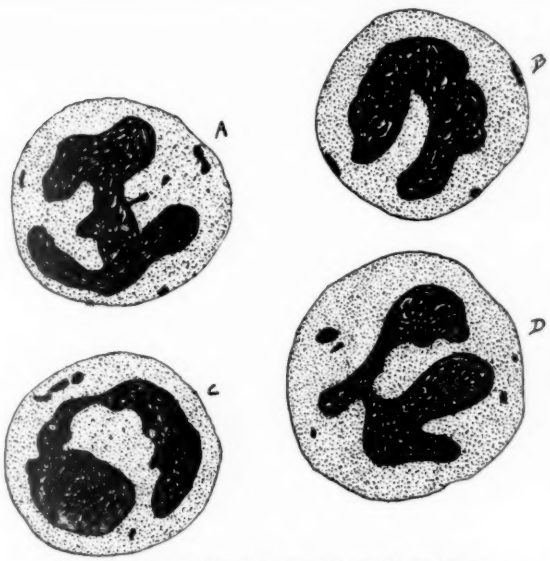
BY LEWIS WEBB HILL, M.D., BOSTON,

Medical Interne, Massachusetts General Hospital, Boston.

DÖHLÉ'S leucocytic inclusion bodies are small coccus- or bacillus-shaped bodies occurring in the polynuclear leucocytes of the blood in a number of diseases, especially in scarlet fever, and were first described by him in November, 1911. Since then, many articles have been written about these bodies so that another one would perhaps seem superfluous, but it may be of some value to report 100 cases studied at the South Department, Boston City Hospital. There will be no attempt made to give an extensive review of the literature as this has already been done in previous publications.

Döhlé himself first considered these bodies to be fragments of a disintegrated spirochaete which had been ingested by the polynuclear blood cell and called it the spirochaete of scarlet fever, believing it to be specific. This has, however, been discredited. Kretschmer, in 1912, examined 85 cases, 15 scarlet fever and 70 con-

* Read before the New England Pediatric Society, March 27, 1914.



Four Leucocytes Showing Characteristic Inclusions.
A shows prolongation of nucleus.
B shows most characteristic position of inclusions at periphery of cell.
C and *D* show variations in morphology of inclusions.

trols consisting of various diseases, and found the inclusions present in all the scarlet fever cases and in only four of the controls, those positive being two cases of diphtheria, one of tuberculosis and one of pneumonia. He was not able to reproduce the bodies in the blood of animals after injection with scarlet fever material.

Nicoll and Williams examined 51 cases of scarlet fever and 25 controls of diphtheria, erysipelas, pneumonia, tonsillitis and German measles, 45 of the scarlet fever being positive and only 3 of the others positive. These were one case of pneumonia, one of erysipelas and one of measles. Nicoll later reported a new series of 115 scarlet fever cases and found positive results in all but 16, all except 3 of these negative cases having been ill for over 7 days. 8 cases of erysipelas were all positive, as well as 7 cases of sepsis, most of them of puerperal origin.

Ahmed believes that the inclusions have a definite relation to the amount of fever and is of the opinion that they are fragments of the nucleus. Kolmer examined 214 cases of scarlet fever and found bodies present in nearly all of the early cases and in a few of the late cases, one as late as the 44th day. He also found them in 13 out of 50 cases of diphtheria examined in the first few days of the infection. Of 30 cases of serum sickness, developing a rash, none showed inclusions. Kolmer also examined bloods from a number of other diseases and concludes that the inclusion bodies bear a definite relation to the streptococcus toxin and that they are present in 94% of all scarlet fever cases during the first three days. He believes that they represent a degenerative process in the cell cytoplasm. He could not reproduce them in rabbits by the injection of scarlet fever material.

Granger and Pole had 191 cases of scarlet fever, 37 of measles, 27 of diphtheria, 24 of tonsillitis, 20 of pertussis, and 20 of serum rash, besides a number of other diseases. They found bodies present in 17 of the measles cases, in 27 of the diphtheria and in 14 of the tonsillitis cases. All of the scarlet fever cases examined before the fourth day were positive, but all except one of the pertussis cases were negative and all of the cases of serum sickness were negative. They conclude that the absence of inclusion bodies during the first four days of the sickness practically excludes scarlet fever.

Lippmann and Hofschmidt reached practically the same conclusions as the other authors cited concerning the occurrence of the bodies, but they believe them to be a product of excessive cell destruction in the body, which has been taken up by the polynuclear leucocytes. They consider that there is a parallelism between urobilinogen excretion in scarlet fever and the occurrence of the inclusion bodies, both being indices of cell destruction due to toxemia and fever. Bongartz regards them as products of the cell nucleus, which have been broken off by the action of bacteria, not specifying any particular group.

Schippers and de Lange were able to reproduce inclusion bodies in the blood of a dog after the injection of a streptococcus culture. They say, "The inclusion bodies are certainly not derived from the nucleus because they have different staining properties. For example, they stain red with methyl green and pyronin while the nucleus stains green."

Cummins believes that they are to be found in practically all febrile diseases, in chronic pyogenic conditions of afebrile character, in severe injuries without febrile disturbance, and in some normal individuals. He was not able to reproduce them in laboratory animals and believes that a nuclear origin is probable. Glomset found inclusions in the blood of normal individuals, 2 to 4% of the polynuclear leucocytes containing them. After the blood had been shaken vigorously with citrate solution, the percentage of leucocytes containing inclusions rose to 15 to 20%. He regards them as detached portions of the nucleus and says that in many cases the nuclei of the polynuclear leucocytes show partly detached fragments, similar in outline to the free bodies.

All of the scarlet fever bloods to be reported in this communication were obtained at the South Department of the Boston City Hospital, at the City Hospital proper and at the Massachusetts General Hospital. Four stains were used:

1. Granger and Pole's modification of Manson's stain prepared as follows: Methylene blue 1.5 grams; absolute alcohol 10 cc.; 5% solution of phenol in water 100 cc. Methyl alcohol was used as a fixative, it being sufficient to dip the slide into the alcohol, wash with water and immediately stain. This was

a very satisfactory stain. With it the inclusions stain a deep blue, the cell nucleus deep blue and the cell protoplasm a pale homogeneous blue.

2. Pappenheim's pyronin and methyl green (2 parts of pryronin to 4 parts of methyl green in saturated aqueous solution) was also found very satisfactory. This stain makes the prettiest preparations, the inclusions staining bright red and the cell nucleus a greenish blue.

3. Wright's blood stain.

4. 1% aqueous solution of pyronin.

Of these stain 1 and 2 are the most satisfactory.

One hundred bloods were examined as follows:

	Positive.	Negative.	Total.
Scarlet fever	43	29	72
Erysipelas	5	0	5
Pneumonia	4	1	5
Syphilis	0	2	2
Empyema	0	1	1
Secondary anemia	0	1	1
Serum rash	0	1	1
Normal	0	13	13

A case was not called positive unless well-defined and well-marked inclusions of fair size and characteristic appearance were seen in at least two or three leucocytes. Of the 29 negative scarlet fever bloods, all except 6 were after the tenth day. Three of these six were on the second day, one on the fourth and the other two on the eighth and ninth days. Of these six cases it is interesting to note that the temperature was normal and there was only a very scanty rash. All of the three which were negative on the second day were positive when examined again on the third day. Of the positive scarlet fever cases, 25 were before the tenth day and eighteen after it, the latest being on the 45th day.

The inclusions are perfectly definite, small, irregularly-shaped masses which stain homogeneously. Their average length is about one micron. They may be pyriform, ovoid, coccoid or bacilliform in shape. They usually lie at the periphery of the cell and in some cells there may be as many as five or six. The most characteristic ones are of the shape of a rather short, thick bacillus, usually with rounded ends and lie on the periphery of the cell with their long axes parallel to it. In any normal blood, there may be seen small granules which may superficially resemble the inclusions, but a blood should not be called positive unless absolutely characteristic and undoubted forms are seen. I have not been able to find inclusions in normal blood. It has been my experience that the sicker the patient, the higher the temperature and the more abundant the rash, the larger and more abundant are the inclusion bodies. In many of the polynuclear leucocytes may be seen small prolongations of the nucleus, as observed by Glomset; sometimes these are attached to the nucleus only by a very narrow strand and resemble in every particular the free bodies. It seems reasonably clear that the inclusion bodies are products of the nucleus and that they are in the nature of a reaction of injury by the nucleus to the bacterial toxin, usually that of the streptococcus. When these bodies are broken off from the nucleus it is reasonable to suppose that they are moved towards the periphery of the cell by centrifugal force, for the blood cells are in a continuous rotatory motion in the blood stream. As the disease progresses, in the course of time the inclusion bodies disintegrate and are absorbed by the protoplasm of the leucocyte. The fact that the bodies stain differently from the nucleus with certain stains does not argue against their nuclear origin, for once a fragment has been detached from the nucleus, it is no longer an integral part of the living cell. It is possible that it may undergo chemical changes and may act as a foreign body in which case it would be natural for it to show a different staining reaction from that of the nucleus. I was not able to reproduce inclusion bodies in the blood of a guinea-pig by the injection of a mixed culture of staphylococcus and streptococcus taken from the throat of a scarlet fever patient whose blood showed inclusions.

From my own observations and from those of other writers it seems fair to draw the following conclusions:

The inclusion bodies are present in a majority of cases of scarlet fever up to the tenth day; in nearly all cases before the fourth day.

They are not specific for the disease, being found in a number of other infections, most particularly erysipelas, sepsis, pneumonia and tonsillitis. They are more likely to be found in diseases with which the streptococcus is associated.

They have the following diagnostic value: If they are not found in a doubtful case which has a rash and a marked fever, the case is probably not one of scarlet fever. They are never found in cases of serum sickness (uncomplicated.)

They are probably in the nature of a reaction of injury of the cell nuclei, caused by bacterial toxins and are small fragments broken off from the nuclei.

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POOR HEALTH IN THE CHILD: SOME DEVELOPMENTAL INFLUENCES AND THEIR IMPORTANCE TO THE ADULT.*

BY JOHN BRYANT, M.D., BOSTON.

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I. INTRODUCTION.

What per cent. of ptoses, adhesions, and other abnormalities of the adult are congenital? What proportion of the community suffers from them? What is their influence upon health? What is the proper treatment of these conditions? What is their influence upon the health of the children of the future?

These and other questions are the results of experience with the often unsatisfactory medical and surgical treatment at present applied to a large class of semi-invalid children and adults included under terms such as sickly, congenitally unfit, asthenics, visceroptotics, and neurotics.

The present paper outlines the first steps in a systematic attempt to put some of these questions on a basis which will permit of a satisfactory answer, and is in the nature of a preliminary note on some two years of work, more detailed reports of which will appear later. Much of it is from a period of sixteen months at clinics and post-mortem rooms in Europe; the remainder is more recent, especially certain observations from the children's department of the Massachusetts General Hospital Out-Patient Department, some findings during the new second year course in cross-section anatomy at the Harvard Medical School, and a rather extensive review of the literature, a summary of which may be found in the form of a bibliography which has recently appeared.*

My belief in the importance of the pediatric end of this developmental problem results from post-mortem work upon the adult, for it soon became evident that many of the peculiarities found in adults could also be demonstrated in children, in infants, and often even in the fetus. In such a case, it is obvious that the primary problem lies not in an adult, but in the child or infant in whom this adult has his origin; conversely, it has seemed probable that many an adult could have been spared years of misery and inefficiency, and have had much added to his productive power by adequate attention during his period of growth.

The world is full of people who from the point of view of the efficiency expert are below par; who as hypo-producers and often as hyper-reproducers become to a variable degree a burden upon the resources of others. Having excluded such extraneous causes as alcohol, syphilis, hookworm, and faulty habits, there will remain many cases for whom some other explanation than a neurosis must be found. Of these, many may be traced to demonstrable physical defects. But it is not enough to call the sufferer bilious, or weakminded, or tubercular, or rheumatic; for constitutional differences largely determine the diseases to which the individual is liable. Tuberculosis is a marked example of a disease which thus becomes a symptom by which we may state the developmental type of its victim.

The developmental influences to be discussed may be considered under the following three groups.

II. DEVELOPMENTAL INFLUENCES CLASSIFIED.

A. *Variations in Type Forms.* From a developmental point of view, man, judged by his intestine, belongs between the carnivorous and the herbivorous animals, and is more nearly related to the latter than to the former (Treves). Consequently the race falls into three type groups: (1) the herbivorous, (2) the intermediate, and (3) the carnivorous. It has long been known that type 1 has a wide short body form and a relatively long intestine, and that type 3 has a thin long body form and a relatively short intestine. This relationship between body form

* Read in part at the meeting of the New England Pediatric Society, May 1, 1914.

* *Surg., Gynec. and Obstet.*, May, 1914.

and intestinal length has been traced as far down in the scale of life as the reptiles and the insects (Dreike). Type 2 is of course less sharply defined, being as it is intermediate between the two extremes. More recently Bean has distinguished three groups on the basis of the germ layers, and has not only been able to recognize them by body form and the shape of the ear, but has made a rough classification of the diseases to which each type is subject. Also, and with reason, there have been many reports on the effect of the upright posture upon the viscera, a change which bears hardest upon the long, loose jointed, trumpet eared, carnivorous type of individual, since his loosely adherent viscera, so well adapted to his four-footed manner of life, work at a great disadvantage in his new attitude; and Goldthwait has found that these type differences apply to the shape of the lumbar vertebrae no less than to the other components of body form.

B. *Variations Common to All Types.* In this group belong many variations of the viscera, which may be roughly classified as follows:

(1). Abnormal persistence of normal fetal structures.

(2). Alterations in development of normal fetal structures: (*a*) Arrest of development. (*b*) Excessive development.

(3). Absent development and malformations.

As an example of (1) may be mentioned the persistence of the caudal edge of the ventral mesogastrium, causing constriction of the duodenum, just reported by Harris; (2a) is represented by the undescended cecum or by a common mesentery for the whole intestine, and (2b) by such formations as Lane's kink. Under (3) would come such abnormalities as absence of a segment of intestine, or of the abdominal wall, or the presence of a true megacolon, as recently observed in a stillborn infant at the Harvard Medical School.

C. *Variations in the Development of the Ductless Glands.*

(1). Metabolic disturbances. (*a*) Organic. (*b*) Inorganic.

(2). Trauma.

(3). Other causes.

There is less known about this group than about the other two, but that the effects of varied diets upon the development and activities of the ductless glands is of real importance, with the resultant possibilities of alterations in function of the whole organism, is sufficiently evidenced by reports in the literature.

III. OBSERVATIONS ON POST-MORTEM MATERIAL.

Largely in Group IIB fall my observations on material obtained in Berlin through Prof. Pick at the Friedrichshain Krankenhaus and through Prof. v. Hansemann at the Virchow Krankenhaus during the fall of 1912 and the spring of 1913. Although more than three hundred autopsies were followed during the year in Berlin, Prague, Vienna, Hamburg, and other places, it was difficult to obtain the freedom desired, and even in Berlin various circumstances combined to prevent my obtaining satisfactory records in more than 218 cases. Undertaken as an orientation in the study of ptosis in the adult, the literature was avoided in order that any conclusions might be unprejudiced. Having reached certain conclusions, and having now reviewed the literature, it is hoped that by a study of an additional 300 cases in Europe during the coming six months, some valuable results may be obtained; for though it is doubtful if many new combinations will be recorded in a further series, a total of 500 autopsies should give a sufficient basis for establishing the normal limit of variations in unselected material,—a standard now sadly needed by which to judge findings in small groups of cases.

A. *Method.* To use a metaphor from deep-sea dredging, it seemed probable that from the application to the problem of a mental drag-net, in the form of a record of as many different facts as possible concerning a given case, whether seemingly related or not, there should result some light on the questions of cause and effect within the abdomen. The necessity of such a method of attacking the question is made the more obvious by a review of the literature. One may find nearly all the single facts of interest recorded, but thus far it seems that no one has attempted a correlation of the whole. The material was unselected, including men, women, and children, infants, and feti, from a length of 12 cm. to an age of 89 years, and the following observations are based for the most part on the first hundred of these cases. Notes were found valueless unless written in the interval between the examination of one case and the next, and it was necessary for purposes of comparison to record the observations obtained under 58 different headings. The work was done without interfering with the routine post mortems, the external measurements and observations being made before the autopsy commenced, and the viscera examined *in situ* during the routine examination of the thorax, the intestine being measured after removal from the body. After experience with about 30 cases, the following system was arrived at:

Four sets of cards were used: 1. External measurements, etc.; under this heading were recorded the case number, sex, age, occupation, disease, and height; also two measurements of the thorax, three of the abdomen, two of the diaphragm, the length of the small intestine and of the large intestine, and the condition of the rib cartilage and of the cartilage of the knee-joint. 2. General observations; such as development, nutrition, the amount of external fat, peculiarities of the thorax, abdomen, extremities, heart, lungs, and diaphragm, the presence of icterus, or ascites, the condition of the omentum, and the amount of intra-abdominal fat. 3. General intra-abdominal; as adhesions, presence of gall-stones, and remarks on the gall-bladder, liver,

spleen, pancreas, kidneys, adrenals, and genitalia. 4. Gastro-intestinal; adhesions, apparent length and disposition of the transverse colon, and notes on the condition of the stomach, pylorus, duodenum, ileo-cecal valve, appendix, ascending colon, hepatic flexure, transverse colon, splenic flexure, descending colon, sigmoid flexure, and rectum. It was not possible to obtain notes under every heading on each case, but even an average of notes under some 28 headings per case has supplied some interesting correlations. The adhesions proved difficult to record, and resulted in a mere note of presence or absence on card 4, while on card 3 a detail was given by means of numbering the organs from 0 to 17; thus in case 73, a man of 87, the figures 0-1-2-3-4-9-11 signify a mass of adhesions, including the liver, peritoneum, omentum, gall-bladder, duodenum, ascending and transverse colon. Case 54, a man of 60, with adhesions numbered 3-4-11, 2-4-11, is interpreted as a band from the gall-bladder across the duodenum to the transverse colon, and a band of omentum across the ascending and transverse colon, thus giving in this case practically the lesion to which Harris recently referred, and a form of Jackson membrane. In case 87, a man of 76, under 3-4-11, 1-7, and 2-13-14, we have three lesions, the band across the duodenum from the gall-bladder to the transverse colon, the appendix bound to the peritoneal wall, and a band of omentum across the descending colon and sigmoid flexure, or more properly speaking, the iliac colon.

B. *Thorax.* In measuring the thorax, two levels, determined by convenience, were used for the purpose of recording variations in the size of the lower thorax. In all newborn infants measured, the circumference at the tip of the eighth rib equaled or exceeded that at the lower border of the sternum; the upper level falls below the breasts of the female, and the lower is at a natural angle of the ribs, below which it is difficult to use even a steel tape with accuracy owing to the rapid decrease in size of the thorax as it merges with the abdomen. One does not often find the lower measure less than the upper until about 5 years of age, after which the narrowed chest increases in frequency, so that in the total of 9 children in which this double measurement was recorded in this first series, only 57% have the full normal infantile type, and in the total of 43 adults one finds the normal in only 33% of males and 37% of females. Thus we see that the full infantile thorax, at least in the working class from which this material is drawn, is slightly more common in the adult woman and the so-called tapering feminine thorax of the artist is rather more common in the grown man; in other words, the male thorax is abnormal in 67% and the female in 64% of these cases. In using these thoracic measurements, it is observed that all complicated calculations are avoided, and that, first, although both measures may be the same, both may be above or below the normal for a given height; second, when the upper measure is normal for a given height, the lower measure is really the more important, since it is a better indicator of internal derangements.

What is the significance of this change in thorax form? Harris, as later discovered, has concluded that nephroptosis in the adult runs parallel with this narrowing lower thorax, and that he can predict the position of the kidney by his measurements. He finds the kidney low in 56% of 126 adult women, and considers the low kidney the result of the narrowed body form. He believes that owing to the lessened capacity of the thorax, attributed by Goldthwait partly to postural depression of the diaphragm, the liver is forced downward, it in turn acting directly to depress the kidney; this is soon sufficiently low so that all further downward pressure acts above the centre of this organ, to force it still further downward, and thus such trauma as coughing tends always to increase the nephroptosis.*

Osler considers nephroptosis four or five times as common in women as in men. If this is so, according to Harris the narrowed chest should be much more frequent in women than in men; but from my figures the narrow chest is even more frequent in men than in women; also, a low liver is not incompatible with a high, firmly fixed, apparently normally placed kidney, and conversely, the kidney may be found low with the liver high. Therefore it would seem unlikely that Harris is wholly correct. Is it not more probable that ptosis is rather a cause than an effect of the narrowed thorax, since the incidence of the narrowed chest in the adult is only 65%, while ptosis may be put at 75%, with adhesions yet higher at 84%, and since this difference in relative frequency is even more striking the younger the child?

The causes of this narrowed chest would seem to me to be multiple, as for instance the limitation of body type, an unusually low attachment of the diaphragm on one or both sides, and intra-abdominal conditions such as ptosis and adhesions, in addition to the usual trauma of life, which include occupations, bad habits, and fatigue.

C. *Diaphragm.* In addition to the usual note on the highest level of the dome of the diaphragm on both sides, a second measurement was possible owing to the routine manner of the thorax examination employed by Prof. Pick. Since the thorax was always opened with a knife by a cut along the junction of rib cartilage and bone, it was possible to observe at what level this incision intersected the diaphragm, in other words, to register its height of attachment in this anterior location. A considerable number (40) of observations gave an average height of attachment on both sides at this point, of the seventh rib, with a variation from the sixth to the eighth, on one or both sides, and it seemed

* As a possible source of error in the clinical determination of nephroptosis in the adult is suggested the presence of the so-called corset lobe of the liver; often these little lobes have been seen which, post-mortem at least, would have seemed to have been in life a not improbable source of confusion to the diagnostician.

that this irregularity had some influence on the shape of the lower thorax.

D. *Adhesions.* Adhesions of some sort were present (including frank peritonitis) in about 86% of 77 adults, and 71% of 20 children; excluding peritonitis cases, adhesions or bands were present in 83% of 46 male and 86% of 27 female adults; in children, adhesions were present in 77% of 9 males, and 50% of 8 females, the youngest child in this group being 1 month and the eldest 16 years old with 50% of them between 1 and 8 years of age. Thus, though the initial rate is 22% higher, the adult male has increased his rate only 6% as against an increase of 36% in the female, and in the end the male has a 3% lower rate of frequency than the female. These figures are, of course, from a small number of cases, but they are suggestive in two directions: the female children average younger than the male, and it may be that part of the percentage difference in children is due to age, but this would not account for the final male ratio. On the other hand, even if the female child ratio were for age equal the male ratio, it would make even more striking the fact that at the age of 16 years this series of 100 cases had acquired 85% of its total supply of adhesions. Unfortunately, I have found no figures with which to compare these.

Morris, in a discussion of the location of adhesions, gives four groups in the following order of frequency: Gall-bladder, cecum and appendix, pelvis, and sigmoid. Robinson, giving a longer list of locations reverses this order, *i.e.* mesosigmoid 82%, pelvis 80%, ceco-appendix 72%, and gall-bladder 68%. My results correspond with those of Morris: In detail, the gall-bladder was involved in 58 cases, the transverse colon in 55, duodenum 39, omentum 31, ascending colon 29, hepatic flexure 23, peritoneum 23, liver 21, appendix 14, right kidney 6, cecum, splenic flexure and desecending colon 4, adnexa 3, sigmoid flexure 2, terminal ileum and rectum 1, small intestine, 0. Frank peritonitis from any cause was excluded from this list, and almost no cases except those of peritonitis had been operated upon. In a word, the upper right quadrant was the most common seat of trouble in the proportion of 140 to 19, which number is for the right lower quadrant.

Two other points of interest in regard to adhesions may be mentioned. First, in those cases in which the appendix seemed normal, the various adhesions were fewer, of a simpler type, less often multiple, and less often situated at the flexures; there were fewer gross changes in the gall-bladder itself, but more gall-stones (*i.e.* 19% of 42 abnormal, vs. 8% out of 24 with normal appendices), and slightly more abnormal knee joints (50% of 6 vs. 40% of 14 normal cases). Second, adhesions were absent in only three cases in a series of 25 adults. In two of these the double thoracic measurement was recorded, and in both the thorax was of the full infantile type with the nutrition good.

E. *Ptosis.* In my consideration of ptosis, the transverse colon was eliminated as being too loosely attached. Four organs were chosen for record,—the stomach, ileo-cecal valve, liver and right kidney. It was found that with slight pressure and a downward sweep of the extended hand from the cardiac toward the pyloric orifice, the lower border of the stomach could be closely approximated to the level obtaining in the upright position; the stomach was then called low if the greater curvature came below the level of the umbilicus, and in addition it was noted when the greater or the lesser curvature of the stomach came to the level of the promontory of the sacrum, about half way from the umbilicus to the pubes. The ileo-cecal valve, taken as a more definite point than the cecum, was considered low when its lower border came below the brim of the true pelvis, and the liver when its lower border came below the costal border. The kidney was considered low or loose when it could be moved freely for more than three or four cm. in a vertical direction.

Under these conditions, ptosis was absent in 10% and general in 22%, while one or more of the organs named were low in 75% of 30 cases. In 40 cases the liver was low in 45%, and in 50 the kidney low in 42%. The stomach and ileo-cecal valve were low in 50% of 63 cases, and in these the greater curvature of the stomach reached the sacral promontory in 27%. In another small series, the position of the stomach was recorded in 17 children and 71 adults as follows:

Children.	No.	% Low.	% to Promontory of the Sacrum.
Male	8	63	0
Female	9	88	44

Adults.	No.	% Low.	% to p. s.	% Lesser Curvature to p. s.
Male	42	74	17	2.38
Female	29	90	53	3.48

In all newborn children examined the stomach itself was above the level of the pylorus. In one adult woman and one adult man, the lesser curvature had reached the promontory of the sacrum. Between these two extremes, it will be seen that dilatation of the stomach, for true ptosis of the cardia and the pylorus is not very frequent, is not only distinctly more common in the female at all ages, but of a decidedly more severe type than in the male. This increased frequency in the female applies no less to the position of the ileo-cecal valve, as shown by the following:

Children.	No.	% Low.	% in Pelvis.
Male	9	22	0
Female	7	86	28

Adults.	No.	% Low.	% in Pelvis.
Male	41	41	0
Female	27	66	25

The extreme per cent. in female children is doubtless due to the small number of cases recorded, yet it goes to show that the low ileo-cecal valve is in the female congenital to a much greater degree than in the male. Smith, in a series of over 1000 infants less than three months of age, found the cecum in the pelvis in 10%, but in this 10% there were 34% males and 66% females; thus he found the condition about 100% more frequent in female than in male infants. There is an obvious discrepancy between my figures and those of Smith, but it is at least in some measure due to age differences. As previously stated, the stomach is always small and high at birth; in the same way, the kidney is always high and firmly fixed at birth, and it seems not improbable that some of these recorded differences are due to developmental adjustments of the peritoneum and mesentery, continuing during the first year or more after birth. In any event, it is certain that prolapse of the ileo-cecal valve is much more common in the female than in the male, and that there is less increase with age. In other words, a low, loose cecum is a female characteristic, and it has been explained by several writers on the basis of a physiologic adaptation for pregnancy.

Appendicitis in my series was no more frequent with than without ptosis, which suggests that in such cases it is less often a primary offender than is commonly supposed. It was also noted that the fulminating cases of appendicitis seemed to occur chiefly in children with particularly good health and general development, who showed no sign of pre-existing adhesions about the appendix or elsewhere in the abdomen. Turning back for a moment to the figures on adhesions, it will be seen that in point of frequency for age, adhesions precede the ptoses in the male, while the reverse is true in the female.

F. *Nutrition.* In the field of developmental adhesions about the intestine, my observations have been in accordance with the work of Eastman, Flint, Gray and Anderson, Harris, Konjetzny, Rjesanoff, and others, and there is one new point to add to the subject of duodenal obstruction. In addition to the cause mentioned by Bloodgood, and Codman, and the adhesions demonstrated by Gray and Anderson, one may not infrequently find on careful examination of the duodeno-jejunal juncture a slight anomaly of the ligament Treitz. Usually this ligament is so arranged that the first portion of the jejunum crosses the vertebral column from right to left before turning downward toward the pelvis; but in the cases in question, due apparently to a slight prolongation of the inferior aspect of this little ligament to the right, the duodenum terminates in a jejunum which may reach part way across the vertebral column, only to turn sharply on itself toward the right, following the direction given it by the anomalous ligament of Treitz. The result is obvious: there is provided in this developmental kink an excellent opportunity for the blocking of the duodenum by moderate pressure from a loaded stomach or other cause.

Dilatation of the duodenum was observed with constriction of the lumen by adhesions in 1 or 17.6% of 6 male, and in 1 or 20% of 5 female children; also in 5 or 8% of 65 adults. In 38 male adults dilatation was present in 16% and dilatation with constriction in 6 or 2.6%. In the female adult, dilatation occurred in 40% of 27 cases with constriction in 18.5%. This is in line with the increased frequency of the other intestinal conditions in the female.

Nutrition is apparently in some degree related to the narrow chest, since it is always good in the cases with a normal thorax and usually bad in proportion to the narrowing of the chest in the other cases, that is, with a decrease of the lower thoracic measure below that of the upper of 1 cm. or more. The position of the diaphragm may also play a part here, for out of 8 cases, it is recorded as low in 7 narrowed cases, and as normal in the only normal case. Thus it is possible that variation in the level of the attachment of the diaphragm may be a predisposing cause to ptosis and poor nutrition as well as to the narrowed chest.

My cases confirm the previous observations of others on the existence of a relatively short length of intestine in the tubercular and the asthenics (or static lymphaticus type), the hyperonto-morphs as Bean would call them. It has also seemed that in the absence of constricting adhesions an added length of intestine for a given body height is an advantage; but that in the presence of adhesions interfering with bowel function, added intestinal length becomes a positive disadvantage in proportion to its excess. Consideration of intestinal length is, however, always subject to the finding of almost 100% difference between maximum and minimum length in any unselected series of cases, thus requiring some care in interpreting results.

In a group of children in whom only three were noted as emaciated, these were the only three recorded as having adhesions about the hepatic flexure; they also had very short intestines, that of a boy of 16, for instance, being shorter than that of a healthy girl of only 8 months of age in the same group. These hepatic adhesions were of the developmental type. Is it not possible that in these cases the adhesion determined the lack of growth of the intestine through impairment of nutrition, and that in turn, nutrition was interfered with by the short intestine, thus establishing a vicious circle which could only be broken by relieving the adhesion?

In view of an equal sex distribution of joint lesions and of the preponderance in these lesions of liver and gall-bladder troubles, the sex distribution of gall-bladder changes may be mentioned. No stones were found in children, but the gall-bladder was noted as thick in two of four males, and all of four females. In adults, the gall-bladder was noted as thick in 50% of 26

males and 20 females, but stones were present in 23% of the males and 35% of the females, an increased frequency of 13% in the latter.

It is perhaps admissible to consider here a little end result evidence, as a side light on bodily function, in the shape of late changes in the cartilage in the ribs and of the knee joint. In 53 adults, the rib cartilage was normal in only 4, or abnormal in 92.5%, with 100% abnormal above 35 years of age. The youngest positive case was an emaciated boy of 16, dying from carbuncle of the lip, with the meninges of his brain afloat in pus. There were the usual calcium deposits above the vessels in the rib cartilage. The oldest normal adults were a thin man of 34, with tuberculosis, and a fat woman of 35 with acute post-abortive peritonitis. Aside from the calcium deposits about the vessels above mentioned, the common early change in the cartilage was an apparent drying and granulation of the whole cartilage substance.

The changes in the knee joint were of the type variously called senile, degenerative (Nichols), or hypertrophic (Painter). Occasionally, a slight hemorrhagic area was observed, but usually the change consisted in erosion or fibrillation of the cartilage, sometimes slight and superficial, and sometimes exposing the bone, allowing the formation of exostoses of varying size. The cartilage looked like the end of a twig which had been pounded with a hammer. Below the surface this cartilage almost invariably contained small millet-seed sized white granules, apparently of calcium. When slight, the cartilage changes always appeared first on the patellar surface, suggesting that the process involved the femoral and tibial surfaces only in the more advanced cases.

The knee joint cases are more interesting than those of the rib cartilage, showing as they do more apparent relationship to derangements of the biliary, respiratory, and circulatory systems. The joints were examined in 35 cases of the series of 100 on which this paper is based. If one joint was positive the other was examined, for both joints were always normal or always affected in more or less degree. Children were negative unless tubercular or otherwise clearly infectious. The youngest positive case was a woman of 21, and the oldest negative case a woman of 76. The sexes were affected equally, with about 62% positive, and 75% positive in 20 cases above 50 years of age. The most frequent age period was between 60 and 65, which included 25% of 33 cases. The following associated conditions were noted:—

Condition.	Knee Joints. Normal. No. of Cases.	%	Abnormal No. of Cases.	%
Adhesions	9	100	24	87
Total liver changes	9	11	23	52
Gall-stones	6	17	6	83
Gall-bladder changes	8	12.5	17	70
Intestines low or loose	9	89	24	38
Kidney low	9	11	17	41
Liver very low	9	11	23	26
Cirrhosis	9	0	23	13
Perihepatitis	9	0	23	13
Flexures involved	9	44	24	54
Adhesions, simple	9	56	24	29
Nutrition:				
Good	8	50	22	45
Poor	8	37.5	22	41
Emaciated	8	12.5	22	13
Intra-abdominal fat plus	8	12.5	22	9
Disease:				
Lung	9	33	23	48
Heart-Kidney	9	11	23	35
Other causes	9	56	23	17
Rib cartilage abnormal	9	77	24	96

In height the positive cases averaged less than the negative, and yet the total intestine measured longer. In other words, the intestine relatively was distinctly longer in the positive cases. It may also be noted that this extra length was in the small intestine, for the large intestine was slightly shorter in the positive cases. Likewise the positive group contained the two extremes in intestinal length.

It will be observed from the above table that chronic degenerative or hypertrophe arthritis is more common in a rather short, somewhat thin type of individual, with a relatively long small intestine and rather short large intestine, a type of intestine likewise proved undesirable as the result of studying the nutrition of a group of young children. The joint case has also a high proportion of biliary troubles, of adhesions of the severer grade or those about the flexures, and of low kidneys. Apparently uncomplicated ptosis and simple adhesions are matters of slight consequence. In addition, the positive case shows more rib cartilage changes and a higher incidence of respiratory and especially of cardio-renal complaints.

G. *Ductless Glands.* Two notes on the suprarenal gland may be of interest. 1. Severe extensive hemorrhages were seen in newborn children at the Virchow Hospital. It is suggested that in a non-fatal degree such suprarenal hemorrhage with consequent glandular tissue destruction may be a factor in the suprarenal deficiency of some adults. 2. In later childhood or adult life, as recently observed at the Harvard Medical School, the right adrenal, especially in proportion to the degree of narrowing of the thoracic outlet with the usual low position of the liver in these cases, is exposed to direct pressure between the firm liver and the much firmer vertebral column. This follows upon the fact that the right adrenal, almost wholly unprotected by fat, even in stout people, lies in a thin strip between these two firmer organs; the left adrenal, on the other hand, more triangular in shape, rests in a protective pad of fat, safe from pressure by any heavy organ.

Questions of diet in the control of the ductless glands, as illustrated by the work of Hunt, Schiotz, and others, are certain to engage increasing attention no less than a study of the effects of the action of the different elements

contained in the various drinking waters. It has, for instance, been noted in examining the records of 40 cretins at the Massachusetts General Hospital O. P. D., children's department, that many cases have developed in children who have been breast fed for unusually long periods of time, *i.e.* from one to two years, and that these children have been habitually constipated from birth, sometimes in extreme degree. In a total material of 231287 cases, cretins occurred with a frequency of about 0.06%. One family history may be quoted.

A short stout healthy-looking intelligent Jewess who at the time of inquiry was engaged in getting a divorce. She was the mother of two cretins, the younger of whom was about five years of age. Both of these children were habitually constipated and both had been breast fed for more than one year. She stated with conviction that the whole cause of her misfortune was her long-continued ever-present sexual hatred of her husband. In view of the action of psychic effects upon secretion of the stomach, it is certainly not impossible that intense sexual aversion may act to depress the function of the ductless glands during pregnancy, and various workers on animals have found that a small thyroid or other gland in the mothers always determines the presence of a small or deficient gland supply in the fetus.

IV. CLINICAL OBSERVATIONS.

On the evidence of some 300 O.P.D. records from the children's department of the Massachusetts General Hospital, is presented the following well-known type of sickly child with which clinics are overrun. Though in one the nervous system, and in another the circulatory or respiratory system may seem the chief offender, the gastro-intestinal tract appears always to be involved if only in as mild a form as constipation or diarrhea, and underneath these more or less superficial manifestations, there seems to run a family resemblance in the form of an ill-adjusted or defective organism. Something is out of tune, off color, and the result is bad. One very constant finding is an excess of soaps and fatty acids in the stools, especially in the group of chronic intestinal indigestion cases. These are usually difficult to treat, always have an excess of certain food components in the stools, usually fat, and on examination the pronounced big belly is in marked contrast to the small chest and extremities.

The composite history of these children reads like the index to a standard system of medicine: there is almost always something going on, but there are certain critical periods. Usually marked gastro-intestinal symptoms appear before the age of two months. The child may then disappear until perhaps at two years of age it returns with glands of the neck and a history of frequent coryza, colds, coughs, and middle ear trouble. Then come adenoids, and tonsils, and by five years of age it is almost sure to have added dental caries and perhaps pyorrhea alveolaris to the list. Meantime, it is likely to have had severe pertussis, bronchitis, furunculosis, eczema, or several of these complaints in addition to the usual exanthems; and in spite of all it continues to live and acquire yet more diseases.

On examination this child is pale and pasty if fat, or if thin, sallow with a yellowish tint to the eyes and the dry skin. The liver is felt 1 to 2 cm. below the costal border, with possibly some tenderness over the gall-bladder. The spleen may be enlarged and some degree of anemia is usually present. A blood examination may show in addition to the anemia a slight leucocytosis, with perhaps a relative increase of lymphocytes. Appetite is capricious, sleep poor, and eneuresis frequent. The stools will show constipation or diarrhea, frequently with a foul acid or sour alkaline character. Tuberculosis is frequently suspected. The extremities are negative unless cold and purple, and the thorax, excepting active processes of the lungs or heart, is negative if not flattened throughout or diminished below. There is a curious absence of abdominal palpatory findings, which is in marked contrast to the habitual constipation or diarrhea, and the usual report is: abdomen flat, negative. This absence of local symptoms has often been reported in the study of chronic adult sufferers presenting positive intra-abdominal Roentgen findings. When one adds to the previous ailments those of the nervous system, from tic to epilepsy, the list becomes truly formidable; but it is surprising to see how many of these diseases can be accumulated by one child before it graduates from the pediatric department; and with a little trouble one may follow some of these sickly children through the intervening years to the operating table at the age of 20 or 30 for some intra-abdominal, usually gastro-intestinal complaint.

Compare for a moment the clinical and postmortem findings. Which would seem to be the more primary, the widespread pathological intra-abdominal lesions of varying degree common to all ages and both sexes, or the multitudinous often evanescent diseases of the child? A consideration of the preceding paragraphs would seem to indicate that the definite pathological findings may act to interfere with nutrition and bodily function to the extent of producing a marked lessened resistance, and consequent increased susceptibility to the diseases to which these children are always exposed.

V. DIAGNOSIS.

Knowledge which will permit of relieving some of the underlying conditions affecting the health of the sickly child or the semi-invalid adult depends upon an appreciation of the significance of body form in its differing types, and of the characteristic postures assumed by these sufferers no less than upon the accepted laboratory methods. In addition there is presented, in

the form of a simple double thoracic measurement, a new, and it is believed a valuable aid, in the recognition of the probable existence of definite intra-abdominal lesions which might otherwise go unsuspected until the application of better known diagnostic methods.

VI. TREATMENT.

The treatment of these cases is essentially non-surgical, in that though an operation may be imperative for the relief of a constricting adhesion or other definite lesion, any approach to a cure is only reached through weeks and months of pre- and post-operative medical or orthopedic care, during which body form must be altered, posture corrected, and diet regulated to stimulate a natural organo-therapy. Failure with milder methods is, of course, the indication for the use of gland extracts or other more radical attempts at cure, but it is certain that no cases are so hopeless as to be incapable of some measure of improvement. The most important single point of attack is the norrowed lower thorax. If this can be restored to the normal full infantile type, the case will show improvement no matter what the intra-abdominal complications. The second indication is to provide the patient with a natural abdominal bandage, replacing the familiar "clam-belly" by firm and efficient oblique and transverse abdominal muscles which will hold his loose viscera where they belong in the now enlarged upper abdominal cavity. In this connection it may be observed that the rectus is less efficient for the purpose than the muscles just referred to, and becomes still less efficient as a binder in proportion to the increased depth of the thorax. The third point of importance is to provide the patient with back muscles strong enough to maintain the normal shape of the thorax under any and all stresses of life to which he may be subject.

A more complete consideration of diagnosis and treatment is reserved for the future.

VII. CONCLUSIONS.

1. Adhesions, ptoses, and other demonstrable physical defects are of very common occurrence at all ages in both sexes, but the frequency of these defects in the adult is not markedly greater than in the child.

2. It is not improbable that such defects may stand in a causal relation to some at least of the disabilities of the child and the adult.

3. An anomalous ligament of Treitz may be a factor in obstruction of the duodenum.

4. A simple double measurement of the thorax is presented, which is likely to prove an aid in the recognition of certain intra-abdominal abnormalities. This measurement is in a variable degree an indicator of physical efficiency, and is useful after the age of five years.

5. The treatment of developmental defects is primarily non-surgical, and if properly carried out in the child is preventive, in that it will result in creating an adult not only personally more efficient, but one who may entertain the hope of having physically more perfect children.

6. "The problem is comprehensive enough to accept all the assistance it can through gymnastics, bandages, regulation of diet, and habits, and still furnish an abundant per cent. of human wreckage (Lanè) for the surgeon to attempt to reclaim" (Schachner).

In closing it is a pleasure to express my indebtedness to Prof. Charles S. Minot and to Dr. Goldthwait for their continued interest and valuable suggestions during the progress of this work.

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Reports of Societies.

NEW ENGLAND PEDIATRIC SOCIETY.

THE THIRTIETH MEETING HELD AT THE BOSTON MEDICAL LIBRARY, MARCH 27, 1914.

FRITZ B. TALBOT, M.D., Secretary.

DR. MARSHALL FABYAN read a paper entitled,

BACILLUS OF CONTAGIOUS ABORTION.

ABSTRACT: The present efforts being made for the production of clean milk. As scientific investigation advances other factors of unknown importance appear. Dr. Theobald Smith nearly twenty years ago reported lesions occurring in guinea-pigs inoculated with cow's milk, as due to some unknown cause. The close similarity of these lesions to those produced by tuberculosis in the guinea-pigs, was remarked upon. In 1910 we met with similar lesions in guinea-pigs inoculated from the placentae of aborting cows. After much difficulty an organism was isolated which proved to be identical with the bacillus of contagious abortion discovered by Bang and Stribolt in 1895.

The lesions occurring in guinea-pigs are of extraordinary character, involving the spleen, lymph-nodes, liver, lungs and in fewer instances, the kid-

ney, testes, bones and special organs,—eye. These lesions are composed of tubercles made up of large epithelioid cells, having large poorly staining nuclei, containing little chromatin, and a small amount of protoplasm. Small round cells, giant cells and occasionally leucocytes may be present. The bone lesions occur in about 25% of inoculated animals. These include enlargement of the extremities about the joints, and general enlargement of one or more ribs. The process apparently starts in the marrow and stimulates the bone to an extraordinary proliferation. A diseased rib may be two or three times the size of a normal one. No pain seems to accompany the enlargement.

Isolation of the organism from material: When in small numbers or where probable contamination, best to inoculate guinea-pigs. Pure cultures may be obtained from the spleen of such animals after a period of two or more months. Peculiar cultural conditions required. Partial tension of oxygen. Nowak's method,—utilizing the absorptive power of Bacillus Subtilis in a sealed jar. Successful growth by sealing the culture tube itself. After a few transfers the organism becomes aerobic, a property not lost by further animal inoculation. The peculiarity of growth prevents its detection in the usual methods of enumerating the number of bacteria per cubic centimeter of milk.

Milk is a constant source of supply for further infection among dairy herds. Examination of samples of milk from twelve cows in a prize herd, including two which had recently aborted. The abortion bacillus was found in the milk of one which had aborted two weeks before at the eighth month, and in the milk of another which had dropped a normal calf eleven months previous, and had therefore probably given infected milk continuously for nearly a year. Other investigation has shown that only one teat may be shedding the organism. Macroscopically, the udder may appear entirely normal on section.

Schroeder has stated that 10% of market milk is infected with the abortion bacillus.

Method of testing for the presence of the abortion bacillus or its antibodies in cows: Guinea-pig inoculation, agglutination, complement fixation, and the inoculation of a filtrate similar to tuberculin, called "Abortin." Complement fixation has been tried with human serum with some success. Larson and Sedgwick have recently reported having tested by this method, the sera of a number of women who had aborted. They obtained more positive results to the abortion bacillus than to syphilis. They examined the blood of 425 children and found 73, or 17%, positive to the abortion bacillus. They speak of this 17% as having lesions of the osseous system, and in most of them the clinical diagnosis of tuberculosis and rickets had been made.

Undoubtedly the opportunity for the frequent ingestion of the abortion bacillus by man is fairly well established. The question remains as to whether under certain special conditions, such as pregnancy or lowered resistance, this organism is able to gain entrance and produce pathological lesions.

DISCUSSION.

Dr. Marshall Fabyan: In my conclusions I said it is a question whether this organism is able to gain entrance, and produce pathological lesions. I think both of these points should be considered.

Of our laboratory animals experimented upon, the guinea-pig, rabbit and mouse all showed some pathological changes. We were able to reisolate the bacillus from the rat after nine weeks, from the pigeon after eighteen weeks and from the monkey after a period of thirteen weeks, although in none of these animals were any lesions subsequently observed either macroscopically or microscopically. It, therefore, seems apparent that the bacillus abortus may exist and multiply in the body of certain laboratory animals for weeks without producing evident pathological lesions.

Dr. Lewis W. Hill read a paper entitled,

REPORT ON LEUCOCYTIC INCLUSION BODIES.*

Dr. John B. Hawes, 2nd, read a paper entitled,

UNDER WHAT CONDITIONS IS THE DIAGNOSIS OF "TUBERCULOSIS" IN CHILDREN JUSTIFIED?†

DISCUSSION.

Dr. Cleaveland Floyd: I think this is a very important subject and that we should be very grateful to Dr. Hawes for bringing it up. With regard to this particular case, I think it is always of value to make discussions pointed and definite, and I see no reason why we should not so discuss the case which he has presented tonight. I happen to be one of the men to disagree with Dr. Hawes in this particular case on account of the evidence we gathered, which was as follows: A child, as he says, coming from a poor quarter, with a grandmother who has been sleeping with the child for some weeks or months, who later died with tuberculosis in Tewksbury. The child, according to my point of view, was somewhat under-developed and undernourished. The mother at the first examination denied that the child had night sweats, that the child had a cough or any other sign of the disease, but on urging, she admitted what previously she had denied,—that all these symptoms were present. It seems to me that there was definite evidence of consolidation at the right apex, paravertebral dullness and d'Espine's sign, with faulty expansion on the right side, all of which seemed important evidence of a process going on in that lung. This child's temperature was taken a number of times in the afternoon as well as in the morning and there has always been a temperature, varying from 99 to 99.4° F. With regard to the von Pirquet test, this is a very interesting point. Two tests were done at other clinics and were negative. I did one myself subsequent to these and got a perfectly positive result, the diameter of the inflamed area being 1½ c.c. I do not believe that there was any sensitization of the child as the previously inoculated areas did not show renewed inflammation. A number of German observers believe that we have no right to call a von Pirquet test negative unless we have done the test at least three or four times with a negative result in each. This child has been followed by the Boston Consumptives' Hospital since she was first examined. She has been excluded from school on our diagnosis, has been out of school now for three months, has gained six or seven pounds in weight, looks very much better.

The mother is interested in the child and is now doing something for her. From my point of view that child had tuberculosis of the lungs; I think she

* See page 792.
† See page 784.

also had enlarged bronchial glands. I think the d'Espine sign is not one on which to place too much importance. In a recent study of some hundred cases to demonstrate what signs are met with in the bronchial glands, I have about come to the conclusion that the d'Espine sign is one of minor importance. In regard to the importance of the x-ray, I believe that where the x-ray man who knows something about lungs tells you that the case is a questionable one, you had better put it down as tuberculosis. I have seen a number of men working in this particular field, and their ideas of what constitutes a normal lung and normal glands are very variable. In other words, I do not believe that their standard of normal is a correct one. I agree with Dr. Hawes that the early diagnosis of tuberculosis is one of prime importance. I am sure the child is much better today than she was three months ago.

DR. WALTER C. BAILEY: After looking at this subject from the point of view of adult tuberculosis and realizing the lack of progress that we are making in the cure of pulmonary tuberculosis in adults and seeing the constantly increasing numbers coming to us each year with pulmonary tuberculosis and wondering what is to be done, I got interested in the question of tuberculosis in children and childhood infection, and again in reading and finding a good deal of evidence for the theory that practically all adult tuberculosis is the result of infection in childhood. it therefore becomes a general question, and I wouldn't go into this case excepting for one aspect of it, and that is the contact, —the chances for this child to become infected. Now the grandmother, who had lived with the family, had died, and the hospital report at Tewksbury gave the diagnosis as acute miliary tuberculosis. An uncle has died in Syria within a few years, who lived with this family for a period of four or five years, and during this time had one or two hemorrhages, so that he was an active tuberculous source. The father looks very much as if he had tuberculosis, although after one examination the diagnosis was negative. He had a chronic cough at least, and he looks as if he had tuberculosis. I personally believe from clinical experience that it is impossible for a child to become associated for any length of time in a tenement house with an open case of tuberculosis and not become infected. To back up this statement you have the figures published by the Royal German Board of Health, work done under the leadership of Dr. Weber, and very likely some of you have seen it. He published a series of 171 unselected cases coming to autopsy. In 22.5% of these cases viable tubercle bacilli were recovered. Between the ages of two and three, 38.8% gave viable tubercle bacilli. If you get such a large percentage of cases with viable bacilli in unselected cases, what must you get in selected cases? So it seems that we must look at this thing, not as an individual diagnosis, but as an epidemic disease. We all know that in a typhoid epidemic when one is called to see a person who has a fever, rose spots, enlarged spleen, etc., he does not want to stop and make all the tests, but you would say right off, it is typhoid and take all precautions and make your further tests afterwards. Now I think it is only fair to do the same thing in tuberculosis. It is much more of an epidemic than typhoid, and we are never going to get anywhere in stamping out the disease unless we tackle the child problem. This is my idea and very strong feeling. As regards keeping the children out of school, I think here we have one of the most valuable clubs, because you can talk to the mothers and fathers until you are black in the face about bringing the child to the clinic, etc., but when you take that child out of school, they sit up and take notice, and it will surprise you, I think, to learn that up to two or three years ago, it was impossible to make a diagnosis of tuberculosis in a child at the Boston Consumptives' Hospital unless an active process was found in the lungs,—tubercular râles. Now that has been changed and we are making that diagnosis more frequently,—perhaps we are not hitting the bull's eye every time, although I think we did in this case, but at least we are not going backward and we are not standing still. We are calling attention to these facts. We are working toward keeping these sick children out of school. We are going to raise a rumpus among the parents and we are going to try to establish open-air schools. Although we make mistakes occasionally, the principle is right that we ought to be able to make a diagnosis in children with the signs and symptoms which have been spoken of tonight, especially with a history of contact. I want to say a word or two for the derided d'Espine sign. I believe myself it is a valuable sign if you include not only the increased voice sounds over the dorsal vertebrae, but also along the paravertebral lines. We know we can get enlarged glands from measles and whooping cough, etc., but if enlargement persists for six months or a year and the child is going down hill, I think you are fairly safe in calling it tuberculosis. One word with regard to nomenclature. We never will get anywhere unless we throw out the old teachings and call the disease by its right name. We would have been much farther ahead today if the word tuberculosis had been used years ago instead of scrofula. The same is true of the term physiological apex. These two terms belong in the same waste basket.

DR. W. B. SWIFT: I would like to ask Dr. Bailey if in the cases mentioned, where 28% were found to have viable tubercle bacilli, whether there had been any history of exposure previously in those cases.

DR. BAILEY: (Answering Dr. Swift.) The figures given were from a series of unselected cases. There was no statement made whether or not these children had been exposed to infection.

DR. R. M. SMITH: I would like to say a few words, as I was one of the physicians to examine this child. I am perfectly sure that the technic of the von Pirquet tests that were negative was performed as carefully as could be done, and was the same as was used in other cases which proved to be positive, that is, we had really negative von Pirquet tests. The child is getting better, and I believe that she would have gotten better if the diagnosis of tuberculosis had not been made. The treatment is very much the same as in any case of a child in a poor general condition. I think she has suffered perhaps from being deprived of three months of school. Not too much importance can be attached to the interpretation of x-ray plates. The presence of enlarged bronchial glands does not always necessarily mean that the child has tuberculosis. If we accept this sign as positive evidence, I think we are going one step farther than we are justified. I remember a child who had evidence of enlarged bronchial glands, later proved to exist by autopsy, but on physical examination and x-ray examination

showed no tuberculosis. That child had an acute endocarditis with bronchial glands. I have seen cases of chronic influenzal infection which have been followed for from five to seven years, which showed persistent enlarged bronchial glands. I think the d'Espine sign as an evidence of enlarged bronchial glands is very much worth while, but it does not seem enough to me to justify the diagnosis of tuberculosis. There is one other point about the x-ray. It does not seem to me that a positive x-ray plate is sufficient evidence upon which to base a diagnosis of tuberculosis. I saw a patient today who is interesting in this connection. The child came to us six months ago,—she had been exposed to tubercular infection. We went through all the usual procedures and decided that she did not have tuberculosis although the x-ray interpretation of the plate said she had a tuberculous process in her lungs. She was given the ordinary directions as regards hygiene and food which have not been followed very well. She reported today, six months later. She has gained seven pounds in weight and is in perfect general condition. Three of us examined her today and found her lungs absolutely negative in every way. I think in the end it will really be better if we say very frankly that many of the doubtful cases are not tuberculosis and treat them according to rules of general hygiene. It is not quite fair to say that every suspicious case has tuberculosis, and in the long run we are going to lose the confidence of the community if we continue to make the wrong diagnosis.

DR. F. B. TALBOT: I think the trend of this discussion is very promising for the diagnosis of tuberculosis in the future and I am very glad to see that the men who are dealing with tuberculosis in childhood and infancy believe it plays an important part in adult tuberculosis. I think that more and more diseases of adult life will be found to originate in childhood. The various points about this particular case have been discussed so completely that there is no necessity for my saying any more about it, but the discussion has been entirely about tuberculosis contracted by one person from another, and I would not have us leave here tonight without mentioning the fact that it can be gotten from milk, and I have seen a number of cases where the disease has come from the milk taken by young children, and think that this is a very important factor in tuberculosis in children under four years, in fact as important as tuberculosis caused by personal contact.

DR. H. I. BOWDITCH: I would like to say one thing in regard to the d'Espine sign which may be of interest to you. About five years ago I began marking charts of patients at the out-patient department of the Boston Consumptives Hospital, with especial relation to d'Espine's sign in childhood. Since then I have with very few exceptions found that when that sign (as I make it) was strongly positive and remained present, that tuberculosis did not exist. The child usually showed some sign of pulmonary tuberculosis later and the diagnosis became positive. Of course this sign varies under different hands. What one man calls positive another may say is negative.

I think when we have an agreed on nomenclature of what these signs and symptoms mean in a child that we will be much farther on the road than we are at present. I should like to ask Dr. Smith what the treatment would have been in the case under discussion if it had not been diagnosed as tuberculosis.

DR. R. M. SMITH: (Answering Dr. Bowditch.) It is a question of general hygiene and supervision. Many children who present evidences of being below par and who are treated by coöperating with the school nurses and by frequent visits to see if the rules laid down are carefully followed, get back soon into a favorable condition. It is very much the same kind of treatment as for tuberculosis, but does not involve exclusion from school.

DR. J. L. MORSE: I came here tonight without the slightest idea of what this paper was to be about and without ever having exactly formulated my ideas on the subject. If I had written the paper myself I could not, however, have expressed them as well as Dr. Hawes has expressed them for me. My attitude in dealing with students has come to be much the same regarding tuberculosis as syphilis. Every time a student sees a baby with snuffles from a cold in its head, a pimple on its face, or an erythema from wet diapers, he says it has syphilis, and every time he sees a child with a cough or a temperature above normal he says it has tuberculosis. I find it necessary, therefore, to devote a great deal of time to prove to them that these symptoms do not necessarily mean that they have either one or the other. In my own experience, when a child sweats at night, instead of thinking of tuberculosis, I find out whether the windows are open or not, how many blankets it has over it, whether it has adenoids, and a few other things of that sort. Now as to fever, and whether a temperature of 99 or 99.4° F. is a fever. I am inclined to think that if we took a series of normal children and took their temperature right through the day we would find, especially if they had been playing hard or had been excited, that they had a temperature above 99° F. a good deal of the time. That is, a slight elevation of temperature is a very common thing from minor causes, and a little temperature does not necessarily mean tuberculosis. My point is that when a child has a slight temperature, the chances are that there is some other explanation for it than tuberculosis and that tuberculosis should be thought of only when every other cause has been excluded. The cause of the temperature is much more likely to be a little adenoid infection, some infection in a sinus, a mild pyelitis, trouble in the ears, or something of that sort, than tuberculosis. A word as to d'Espine's sign. This almost always means enlargement of the tracheobronchial lymph nodes. The fact that they are enlarged does not, however, necessarily mean that they are tubercular. X-ray pictures do not always prove positively that they are enlarged, for unless the observer understands how to interpret the findings correctly, much confusion is likely to result. Coming to the tuberculin test, I have always felt that a negative tuberculin test, carefully done, was pretty good proof that a child did not have tuberculosis, and I am still inclined to feel so. Another thing to be remembered in connection with the tuberculin test is that the combination of signs in the lungs and a positive tuberculin test does not prove that the process in the lungs is tuberculosis. I have seen a large number of children condemned to death by house officers on account of such a combination, and the children recover completely afterwards.

DR. MARSHAL FABYAN: Apropos of what Dr. Talbot has said about infection from milk, perhaps it

would be of interest to the society to know that in the last few instances of the tuberculous material sent us, consisting of tonsils and cervical glands of young children, the bovine strain has been isolated.

In regard to what Dr. Morse has said concerning the tuberculin test, I would mention that we recently received a large tuberculous gland which had been removed from the neck of a cow. This cow was three years old and had received the tuberculin test twice yearly without ever giving a positive reaction.

DR. CLEAVELAND FLOYD: I think a recent article by Dr. Hess of New York is pertinent here. A series of babies in a ward, were tested on entrance with tuberculin and were found to be negative. They were under the care of a nurse, who was later found to have a well marked case of active tuberculosis. She was discharged. These children were again tested at the end of three months, and a large proportion of them, who had been under that nurse's care, gave a definite positive reaction, showing how soon, at least in this series of cases, these children were sensitized to tubercle bacillus.

I was much interested in Dr. Morse's remarks about temperature. I think it is quite an important sign where it occurs in the morning and afternoon, and especially if you can rule out infection of the urinary tract, ears, etc. Again, you see a large number of children who in spite of overexcitement do not have a temperature. We have felt that persistent temperature in the afternoon, and frequently mornings, was of considerable importance as pointing to an active process in the lungs.

In the work that I have been interested in, the x-ray man has not known what the clinical ideas were on the patient at all. The case has been brought to him to x-ray. We have gotten his opinion before he knows about the case. This is the only way to get a fair and impartial interpretation of the plates. In some cases the d'Espine sign may be due to enlarged thymus glands.

DR. J. B. HAWES, in closing: I have little further to add to the discussion, except that I feel justified in having presented this paper in that it has brought up such valuable discussion, which, after all, is the important part of any paper. Dr. Bailey has a very broad and idealistic point of view in this entire matter; he goes rather further than I can at the present time, at least. Dr. Richard Cabot has said that if you want to get attention drawn to any one subject, "you must raise the devil of a row" about it. I think, therefore, we owe a vote of thanks to the little patient who has been the innocent cause of bringing up this matter before us.

DR. W. B. SWIFT read a paper entitled,

A VOICE SIGN IN CHOREA.

ABSTRACT: A definite and final description in literature of the choreic voice found absent to date. Methods of approach unscientific. Review of literature from 1841. Brief presentation of what the vocal kymograph can register. Demonstration of voice curves. Deductions therefrom as evidence of a new sign in chorea elicited quickly with an easy technic. (For full report see *American Journal, Diseases of Children*, 1914.)

DR. W. B. SWIFT, in closing: I wish to add in closing that the length of the test is merely to bring out more noticeably the voice change. In the talking voice the same change is so short in duration as hardly to be observed without difficulty. This may account for the vagueness in description and the absence of its observation up to date in the literature, and the reason it was found more definitely here was on account of the new method which was used,—the prolongation of the sound and the vocal kymograph.

Book Reviews.

Orthopedics in General Practice. By PROF. ADOLF LORENZ, Regierungsrat, director of the Imperial University Ambulatorium for Orthopedic Surgery in Vienna, and DR. ALFRED SAXL assistant surgeon in the Imperial University Ambulatorium for Orthopedic Surgery in Vienna. Authorized translation from the German by L. C. PEEL RITCHIE, Ch.M., M.D., F.R.C.S., Edin.; late voluntar arzt in the Imperial University Ambulatorium for Orthopedic Surgery in Vienna; tutor in clinical surgery, University and Royal Infirmary, Edinburgh. New York: William Wood and Company. 1913.

The preface by Prof. Lorenz points out many of the conditions in which a knowledge of what may be called orthopedic pathology may be of great help to the internist. Lorenz says that his friend, Prof. Lothar von Frankl-Hocwart, has expressed a wish that some book be written on the subject of Orthopedics in Medical Practice, and that with the editorial collaboration of Prof. Lorenz, Dr. Alfred Saxl has undertaken the fulfillment of this wish.

There follows a discussion of the various orthopedic conditions which may accompany or predispose to diseases of the different systems of the body, namely, respiratory, circulatory, digestive, urinary, nervous, locomtor, etc.

The book serves to call attention to a wide range of diseases in which familiarity with the commoner orthopedic lesions may be of great value to the internist. One gains the impression that the authors believe that these static conditions and structural skeletal changes may actually be the remote cause for diseases heretofore supposed to be primary in the organs affected. There is a growing tendency of orthopedic surgeons to agree with this belief.

The book is intended chiefly for internists, and the orthopedic conditions concerning which there is a difference of opinion as to treatment, etc., are not dogmatically discussed. The wide familiarity with the literature, chiefly European, is shown. We commend the book to the internist

and general practitioner. We should be grateful to Dr. L. C. Peel Ritchie for his careful translation of the book into English.

A Clinical Manual of Mental Diseases. By FRANCIS X. DERCUM, M.D., Ph.D., professor of Nervous and Mental Diseases, Jefferson Medical College, Consulting Neurologist to the Philadelphia General Hospital, etc. Philadelphia and London: W. B. Saunders Company. 1913.

This work has been prepared from a purely practical point of view to enable the general practitioner, the family physician, to recognize mental diseases in their early stages, to know what to do under given conditions, when to commit and when not to commit the patient to a hospital and how to treat him at home or elsewhere outside of an institution, when this is practicable. In this the author has been unquestionably successful, giving excellent clinical pictures of the different forms of the disease and many details of treatment, all of which cannot fail to be of real help in diagnosis, prognosis and treatment, including a number of important points which have escaped other writers. His nosology, however, adds more new and unnecessary terms to confuse the learner, his diagnosis is not wholly complete, as in the matter of the differentiation between manic states and dementia precox, and in his attack upon the teachings of Freud he fails to credit psychoanalysis with many of its advantages in diagnosis and treatment. A chapter on methods of mental examination, also, would not have come amiss. But these are minor defects beside the real and practical merits of this useful manual of mental diseases.

Operative Surgery. For Students and Practitioners. By JOHN J. MCGRATH, M.D., clinical professor of surgery, Fordham University; professor of operative surgery, New York Post-Graduate Medical School; consulting surgeon to the People's Hospital; visiting surgeon to the Harlem and New York Foundling Hospitals; Fellow of the New York Academy of Medicine; member of the American Medical Association. Fourth revised and enlarged edition, with 364 illustrations, including full-page color and half-tone. Philadelphia: F. A. Davis Company, Publishers. 1913.

Since the previous edition many new illustrations appear and much new matter has been added to the text. It is probably true that every teacher of medicine develops, in the course of time, certain individual methods in the presentation of his particular subject, which appeal to him more than the methods of other teachers. He, therefore, finds it desirable to assemble in a text-book the facts and theories in the manner in which he has been able to present them most convincingly to his students. This is the reason why many text-books on both medicine and surgery appear; not because they add anything definitely new nor that they contain essentially new procedures, nor even at times that they represent a ripe personal experience. Dr. McGrath has caused to be published a compact, well printed and well illustrated volume of eight hundred pages. It seems to contain all that is essential for the average student. Operations which come under the general class of emergencies are described with much detail. The book is divided into ten parts, based on an anatomical classification. On the whole, the volume does not present features which distinguish it particularly from a considerable number of well known text-books.

The Operating Room and the Patient. A Manual of Pre- and Post-Operative Treatment. By RUSSELL S. FOWLER, M.D., chief surgeon First Division German Hospital; surgeon, Methodist Episcopal Hospital; consulting surgeon, Hebrew Orphan Asylum, Brooklyn, N. Y. Third edition. Philadelphia and London: W. B. Saunders Company. 1913.

Dr. Fowler has in this edition written a volume of six hundred pages, profusely illustrated. It includes a list of instruments and dressings commonly employed in some eighty surgical procedures and completed by an extensive index. The numerous illustrations, most of them taken from the author's text-book on surgery, are in a very large measure half-tones, well chosen and satisfactory. The printing is clear and sharp and the book is of convenient size. The illustrations of bandaging are particularly to be commended. In his preface he says, "It has been my purpose to simplify the technic as much as is compatible with careful work and to present the subject in a terse, yet I hope, readable manner."

He summarizes the underlying principles of surgical treatment as follows: "Careful anesthesia, exact hemostasis, asepsis, rest of the injured part, use of the rest of the body, feeding advanced to normal as fast as the anesthetic weakened stomach can care for it, and the following of the general rules of hygiene."

These underlying principles are unquestionably correct. The author has been unusually successful in his effort to make the book terse, and it may be unhesitatingly recommended to students and to young surgeons.

THE BOSTON

Medical and Surgical Journal

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MEDICAL LEGISLATION. ANTI-VACCINATION AND THE BAGSHAW BILL.

IN the issue of the JOURNAL for April 2 (p. 559) we published a communication from Dr. George W. Gay, in behalf of The Massachusetts Medical Society, on "Anti-Vaccination and the Legislature"; and in the issues for April 23 (p. 664) and April 30 (p. 697) we commented editorially on the Bagshaw vaccination bill (House No. 1018), which has been passed by the Senate of the General Court. In another column of this week's JOURNAL we publish a second letter from Dr. Gay, describing in the recent experience of Niagara Falls the inevitable result of anti-vaccination legislation of the type of which the Bagshaw bill is an example. Another instance of such experience may be cited in the case of the state of Minnesota, which, with voluntary vaccination and a population of 2,000,000, had in 1912 2320 cases of smallpox, while Massachusetts, with compulsory vaccination and a population of 3,400,000, had in the same year only 218 cases.

Meantime the passage of the Bagshaw bill by the House has fortunately been delayed. At its session on May 7 the House voted to postpone action for one week in order that the replies made by the State Board of Health to a series of questions on vaccination, addressed to it by the legislature, might be printed and examined by the members. In these replies the board states that if any legislation affecting vaccination be needed, it should be more, not less, stringent than at present. The board also says that it is emphatically not desirable to enact a law requiring any particular method of vaccination to the exclusion of other methods. To the question whether vaccination is a harmful procedure, and if not, what is its chief danger and how may it be obviated, the board replies:—

"Vaccination is not in itself a harmful procedure, but the wound may be susceptible to infection from without if it is not properly cared for and protected. Vaccination is always to be considered as a minor surgical operation to be carried out under conditions of strict asepsis."

At a recent meeting of the Boston district of the Massachusetts Homeopathic Medical Society the following resolution relative to the anti-vaccination bill was unanimously adopted:—

"Resolved, That this society is strongly opposed to the bill now before the legislature allowing unvaccinated children to attend the public schools, knowing that such a law would be a serious menace not only to such pupils, but to the public at large."

The attitude of the regular profession on the subject is of course unquestioned. It is earnestly to be hoped that the House will not enact into law the pernicious provisions of the Bagshaw bill.

Since the above was in press, the House has defeated the Bagshaw bill by a vote of 132 to 53.

FOUR NATIONAL MEDICAL MEETINGS.

THE tenth annual meeting of the National Association for the Study and Prevention of Tuberculosis was held on May 7 and 8 at Washington, D. C. At the opening session, Dr. Charles J. Hatfield, of Philadelphia, reviewed the progress of the past decade, since the organization of the society. During this time there have been established throughout the country over 2000 anti-tuberculosis agencies, including 1200 anti-tuberculosis associations, 550 sanatoria and hospitals, 410 dispensaries, and 250 open air schools and classes. At the session on May 8, Dr. Edward Archibald, of Montreal, read a paper on the application of pulmonary surgery to the treatment of tuberculosis; and the Massachusetts method of caring for consumptives was described in papers by Dr. Walter C. Bailey and Dr. John B. Hawes, 2nd, of the

board of trustees of the state hospitals. Dr. W. L. Moss, of Baltimore, and Dr. S. H. Gilliland, of Marietta, Pa., described their experimental investigations on the possible immunization of cattle and children against tuberculosis. At the closing session the following officers were elected for the ensuing year.

"Dr. George M. Kober, Washington, D. C., was elected president and Surgeon-General Rupert Blue of the public health service was made a member of the board of directors. Other officers elected were: Dr. Lee K. Frankel of New York and Dr. Jarvis Barlow of Los Angeles, vice-presidents; Dr. Henry Barton Jacobs of Baltimore, secretary; and William H. Baldwin of Washington, D. C., treasurer. Seattle, Wash., and Chicago were urged for the meeting place next year, but no decision was reached."

The American Neurological Association held its yearly meeting from May 7th to 9th, inclusive, in Albany under the presidency of Dr. Henry Hun. Papers of importance were read on surgery of the central nervous system and on more recent methods of treatment of late nerve syphilis.

The annual meeting of the American Society for the Advancement of Clinical Investigation was held in Atlantic City, N. J., on May 11 and 12. Papers were presented by Dr. George Draper, of New York, on the treatment of tabes by intravenous and intraspinous injection of salvarsan; by Dr. O. M. Schloss, of New York, on blood changes produced by feeding foreign protein; and by Dr. E. W. Bridgman, of Baltimore, on the third heart sound.

The annual meeting of the American Association of Physicians was held in Atlantic City on May 12 and 13. Papers were presented by Dr. Simon Flexner, of New York, on the isolation of the organism of poliomyelitis; by Dr. Franklin W. White and Dr. Ralph D. Leonard, of Boston, on the use of the x-ray in the diagnosis of cancer; by Dr. Julius Fridenwald, of Baltimore, on the results of a series of one thousand cases of cancer of the stomach; and by Dr. Richard P. Strong, of Boston, on the transmission of the virus of verruga to the lower animals. At the closing session, Dr. S. J. Meltzer, of New York, was elected president of the Association for the ensuing year, and Dr. Henry Sewell of Denver, Colo., vice-president. The remaining present officers were reëlected. A full report of the proceedings of this Association will appear in a later issue of the JOURNAL.

THE MEDICAL SITUATION IN MEXICO.

DURING the uncertainty pending mediation in Mexico active hostilities continue between the federal and constitutional forces about Tampico, with considerable casualty on both sides. The United States occupation of Vera Cruz is complete, and comprehensive plans for the sanitation of the city are already being carried out. Surgeon-General Gorgas has detailed Major T. C. Lyster and Major Robert A. Noble to undertake this work, both of whom have had experience in the Panama Canal Zone. The Public Health Service has detailed Dr. Gregorio Guiteras to Tampico and Dr. R. H. von Ezdorf to Vera Cruz. Twenty American Red Cross nurses have also been ordered from Washington to take charge of the nursing in the military hospital at Vera Cruz. At Mexico City the American civil hospital is still open, and the American physicians and nurses remain in charge of the patients. At Galveston, Texas, the United States government has conditionally leased a large bathing pavilion to be remodeled into a hospital.

"The house is three stories high, 100 by 150 feet, and has room for 1400 persons now. The government option provides for another story, if that is needed, so the remodeled structure could accommodate 2000 wounded. In case more troops are moved to Mexico and there is hard fighting, all the wounded would be brought to this hospital for treatment."

Meantime, the United States naval hospital ship *Solace* was lying off Vera Cruz, under command of Dr. L. W. Spratling of the navy medical corps, ready to receive immediately any wounded sailors or marines for care or transport.

"The *Solace* has three isolation wards for contagious diseases with a capacity of 30 patients, rooms for nine officer patients, and wards accommodating 68 medical patients and 76 surgical patients. It has an operating room with two operating tables, an eye, ear, nose and throat examining room, a bacteriological and chemical laboratory, a dental laboratory, a cooled morgue in the after end of the ship, and quarters for the medical staff and crew."

On May 14 the *Solace* brought to New York 101 sick and wounded sailors and marines, 68 of whom were landed and sent to the Naval Hospital. After refitting, the *Solace* will sail again on June 9 to return to Vera Cruz.

MEDICAL LEGISLATION. REORGANIZATION OF THE MASSACHUSETTS STATE BOARD OF HEALTH.

IN another column of this issue of the JOURNAL we print in full the text of the proposed bill for the reorganization of the Massachusetts State Board of Health, as drafted by Dr. Rosenau, and submitted by the Governor with a special message to the General Court. This bill has already been reported favorably by the legislative committee on public health, five of the eleven members, however, reserving their right to dissent. On Friday of last week, May 15, the councillors of the Massachusetts Medical Society, and other physicians interested in public health matters met Governor Walsh at the Boston Medical Library to discuss the bill. In connection with this discussion the name of Dr. Victor G. Heiser, of the United States Public Health Service, was mentioned as a probable candidate for the position of Health Commissioner.

DR. WALCOTT'S RETIREMENT FROM THE BOARD OF HEALTH.

ON May 19 Dr. Henry P. Walcott's term of office as a member of the Massachusetts State Board of Health expired. After thirty-three years of faithful and distinguished service on this important board, much of the time as its chairman, Dr. Walcott is unfortunately not a candidate for reappointment. Indeed the personal sacrifice he has already made for the welfare of the community is greater than might be asked of any man, and merits the appreciative and lasting gratitude of the public and of the profession.

Upon this occasion of Dr. Walcott's retirement, an address, signed by about twenty-two hundred Massachusetts physicians, was presented to him expressing their grateful sentiments and regard. This address, which is published in full in another column of this issue of the JOURNAL, so adequately states the feelings of the profession and the merit of his service that nothing can here be added to its deserved tribute. The standard set by Dr. Walcott's predecessors in affairs relating to public health was greatly creditable to this Commonwealth, and was everywhere recognized by sanitarians; his own discharge of the duties of the office not only has been worthy of them, but makes increasingly difficult the responsibilities of his successors. His was a type of fidelity and devotion not always manifested in unpaid public office, the type

> "in which appears
> The constant service of the antique world,
> When service toiled for duty, not for meed."

MEDICAL NOTES.

HONOR FOR DR. FLEXNER.—It is announced that the President of the French Republic has recently conferred the cross of chevalier of the legion of honor on Dr. Simon Flexner, director of the Rockefeller Institute for Medical Research, for his services to science in the treatment of epidemic cerebrospinal meningitis.

AWARD TO DR. GORGAS.—It is announced that the American Museum of Safety has recently awarded the Dr. Louis Livingston Seaman medal to Dr. William C. Gorgas, surgeon-general of the United States Army, for his work in making the Panama Canal Zone sanitary and habitable.

A WELSH CENTENARIAN.—Thomas Morris, of Westernville, Neb., is locally reputed to have been born on Jan. 15, 1794, at Berriew, Montgomeryshire, Wales. He followed the cobbler's trade in his native village until 1871, when he migrated to the United States and became a farmer. He drinks tea and coffee, is still able to walk, and reads with the aid of glasses.

LONDON DEATH-RATES IN MARCH.—Statistics recently published show that the total death-rate of London in March was 152 per 1000 inhabitants living. Among the several districts and boroughs the highest rate was 20.3 in the old city, and the lowest was 10.1 in Lewisham, a populous southern residential region.

BOSTON AND NEW ENGLAND.

TWO LIVING CENTENARIANS.—Mrs. M. J. Lavin of Melrose, Mass., is said to have been born on May 9, 1814, in Prince Edward Island. She was married in 1837 and has had six children, of whom three are living, with 15 grandchildren and 6 great-grandchildren.

Benjamin Priest, of Canaan, Somerset County, Maine, is said to have been born on May 12, 1811. He is the oldest living veteran of the Civil War.

Long Island Hospital.—The Long Island Hospital, Boston, is in need of new buildings.

"Two years ago the city council appropriated $77,000 for new buildings, and last year $210,000. The construction of a new central kitchen with connecting subways to the different buildings, an addition to the men's dormitory and alteration of the women's dormitory have been undertaken. These building operations will give much relief to the crowded conditions, but further construction, in the opinion of the trustees, should be undertaken at once.

"The institution suffers from lack of sufficient nurses. The present nurses' home will not permit an increase in the number of tenants and, until a new building is constructed, the trustees will be obliged to get along with the present number. Another need is a maternity hospital and nursery separate from the main hospital, and to this use it is planned to put the present nurses' home. The plans already adopted call for a nurses' home and for hospital and dormitory pavilions. The architects estimated that these buildings could be erected within the appropriation of $287,000, but this was found impossible. The amount of money now demanded for the new buildings is $111,951."

Scarlet Fever in Bedford.—Report from Bedford, Mass., on May 10, states that the epidemic of scarlet fever in that town is ended and the quarantine raised.

Jubilee of Massachusetts Dental Society.—The fiftieth anniversary and annual meeting of the Massachusetts Dental Society in Boston on May 7 were attended by about sixty members. The history of the society was reviewed in a paper by Dr. Waldo E. Boardman, of Boston; an address was delivered by the outgoing president, Dr. Aurelius F. Wheeler, of Worcester; and one on "The Relation of the State and District Societies," by Dr. Thaddeus P. Hyatt, of New York City. The following officers were elected for the ensuing year: president, Dr. Henry H. Piper, of Somerville; secretary, Dr. A. H. St.C. Chase, of Everett, and treasurer, Dr. Joseph T. Paul, of Boston. The society voted to raise the sum of $10,000 towards the national fund for establishing and directing oral and dental research.

Recent Mortality Rates in Boston.—The Boston health department's mortality report for the first four months of this year shows an increase of 69 deaths over the corresponding months of last year, but the death-rate shows a drop from 17.90 to 17.81 of 1000 population. The infant mortality for the same period this year shows a decrease of 77.

Deaths thus far this year number 4396 against 4327 last year. Of that number 439 were victims of tuberculosis in all forms, a decrease of 16 compared with the figures of the first four months of 1913; typhoid 30, a gain of 14.

Of 58 diphtheria victims, six were non-residents, while the same number of scarlet fever victims were residents of other municipalities.

The number of children under one year who died during the first four months of this year was 651, against 728 for the corresponding period of last year.

From broncho-pneumonia there were 85 deaths, a decrease of 22; pneumonia, 60.

Hospital Bequests.—The will of the late Mrs. John M. Harlow, of Woburn, Mass., which was filed on May 7 for probate at Cambridge, Mass., contains considerable bequests to the Massachusetts General Hospital and the Boston Medical Library. To the Woburn Charitable Association is left a fund of $20,000 for erecting a surgical building to be known as the Dr. John M. Harlow Surgery, and to be used in conjunction with the Charles Coate Memorial Hospital of Woburn.

The wills of the late Emily and Eliza A. Conant, of Concord, Mass., who died on April 28 and May 2, respectively, were filed simultaneously last week for probate. They contain a bequest of $5000 to the Deaconess Hospital, of Concord, for a free bed, to bear the names of both testatrices.

The will of the late Esther F. Hannum, of Cambridge, Mass., who died on May 5, was filed on May 13, in the Middlesex probate court. It contains bequests of $2000 each to the Cambridge Hospital and the Cambridge Visiting Nurses Association, and $1,000 to the Holy Ghost Hospital, Cambridge.

Roentgen Society of New England.—The Roentgen Society of New England was formed at a meeting of about twenty roentgenologists, held at the office of Dr. A. W. George of Boston, May 6, 1914. An organization was effected and the regular program will begin in the fall. The officers elected were, the executive committee: chairman, Dr. A. W. George; Dr. Walter J. Dodd, Dr. Samuel W. Ellsworth; secretary, Dr. Ralph B. Leonard, all of Boston.

MASSACHUSETTS COLLEGE OF PHARMACY.—The annual graduating exercises of the Massachusetts College of Pharmacy were held in Boston on Thursday of last week, May 14. The principal address was made by Mr. Samuel W. McCall. Diplomas were awarded to 39 students, 4 of whom are women.

CASES OF INFECTIOUS DISEASES reported to the Boston Board of Health for the week ending May 12, 1914: (Diphtheria, 45, of which 2 were non-residents; scarlatina, 107, of which 18 were non-residents; typhoid fever 6; measles, 114, of which 2 were non-residents; tuberculosis, 59, of which 5 were non-residents.

The death-rate of the reported deaths for the week was 15.49.

NEW YORK.

NEW YORK BOTANICAL GARDEN.—May 7 was a field day at the New York Botanical Garden, Bronx Park, in honor of the Woman's Auxiliary of the Botanical Society. On the reception committee of the board of managers were Drs. W. Gilman Thompson, Frederic S. Lee, and Lewis Rutherford Morris, and after the members and guests had visited all parts of the extensive grounds, riding and walking alternately, tea was served and an address of welcome given by Dr. Thompson in the museum building. The tea was made from the leaves of plants actually grown in the garden, and an interesting feature of the occasion was the presentation by Dr. Reginald H. Sayre of a series of old Chinese paintings showing the process of preparing tea. In addition, Dr. N. L. Britton, director-in-chief of the garden, gave, in concise form, some idea of what the New York Botanical Garden is, with its 250 acres of land, 4 miles of driveways, 8 miles of footpaths, 75 acres of natural forest (including the wonderful hemlock forest), 100 acres of shrubs, 20 acres of lawns and meadows, over a mile of herbaceous beds, 6 to 10 feet wide, with 3,000 varieties of plants; in addition to the immense greenhouses containing more than 8,000 kinds of plants, and the palm house, with 130 varieties of palm.

BETH ISRAEL HOSPITAL.—The Beth Israel Hospital, now located at Cherry and Jefferson Streets, far down on the east side, has purchased for the erection of a new hospital building a site on Livingston Place, fronting on Stuyvesant Square. The plot has an area of some 14,000 square feet, and, in addition to the price of the land, the cost of the new structure will be about $1,000,000. The institution, which was founded in 1890, has outgrown its present quarters, and in the building on Stuyvesant Square there will be 500 beds, besides ample provision for dispensary service.

BRONX CONTAGIOUS HOSPITAL.—A hospital for contagious diseases in the borough of the Bronx, the population of which is approximately 600,000, is now assured, the board of aldermen having authorized the purchase, as a site for the purpose, a tract of thirty-three acres in the upper part of the borough, known as "Seton Falls Park." In July, 1911, the Board of Estimate and Apportionment voted an appropriation of $125,000 corporate stock for such a hospital, but in consequence of vigorous protests made by local taxpayers, action was deferred. This appropriation is now available for the construction of the first hospital building. The Health Department has arranged to have smallpox vaccination performed daily at all its children's clinics, and also, on two days of the week, at each infants' milk station. This action will create 62 offices of the department where vaccination may be obtained free of charge. In view of the mutual interests existing between the health authorities and life insurance companies in the promotion of public health, these companies have been found willing to coöperate cordially with the Health Department in carrying on an extensive educational campaign among the people of the city. Already, the Metropolitan and Prudential companies have placed the services of their agents at the disposal of the department for the distribution of public health literature. The department has often found it difficult to quickly reach large numbers of persons, but the action of these two companies alone means approximately 3,000 agents visiting 750,000 families weekly.

FUND FOR NEW YORK UNIVERSITY.—It is announced that a donation of a trust fund of $10,000 has been made to New York University by Mrs. Helen H. Le Fevre, widow of Dr. Le Fevre, the late dean of University and Bellevue Hospital Medical College. The trust is to be known as the Egbert Le Fevre Deanship Fund, and the terms provide that the income is to be applied toward the salary of the incumbent of the deanship of the school. Although it is definitely so stated, the income of the fund may be added to the salary at present received by the dean. In

making the gift, Mrs. Le Fevre stated that she wished in some way to assist in perpetuating the memory of her husband, and expressed the hope that the fund would prove of material benefit to the institution in which Dr. Le Fevre was so deeply interested, and to which he devoted so much work and time during the best years of his life.

Current Literature

MEDICAL RECORD.

MAY 2, 1914.

1. SUTTER, C. C. *The Development of Complement-Fixation Tests.*
2. STEPHENSON, J. W. *The Intensive Treatment of Syphilis of the Nervous System by Neosalvarsan Intravenously and Mercury by Inunction.*
3. DWIGHT, E. W. *The Value of Small Classes.*
4. WEBSTER, D. *A Case of Endophlebitis Obliterans of the Central Retinal Vein, with Resulting Acute Glaucoma.*
5. FORD, J. S. *Treatment of Pulmonary Tuberculosis by the Induction of Artificial Pneumothorax.*
6. EPSTEIN, S. *Arteriosclerosis as the Orthopedist Views It.*
7. PENDEXTER, S. E. *A Simple Efficient External Nasal Splint.*
8. BALLARD I. W. *Lacerated Cervix Uteri and Reflex Irritation.*
9. BEST, W. H. *Salvarsan in Non-Syphilitic Diseases.*

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1. MILLS, C. K. *The Different Theories of Aphasia.*
2. DERCUM, F. X. *The Clinical Interpretation of Aphasia.*
3. PEDERSEN, V. C. *Tuberculosis of the Right Testicle Secondary to Removal of the Left Testicle for Tuberculosis.*
4. CLARK, L. P. *Cerebrocerebellar Diplegia.*
5. ALEXANDER, R. M. *Dermatitis Exfoliativa in an Insane Patient.*
6. SMITH, H. *Laryngeal Cancer.*
7. *RONGY, A. J., AND ARLUCK, S. S. *Pituitrin.*
8. MACGOWAN, G. *A New Urethroscope.*
9. TELFAIR, J. H. *Complete Inversion of the Uterus Following Delivery.*
10. GREGORY, W. M. *Variation in Drugs.*

7. Rongy and Arluck discuss the clinical use of pituitrin, its abuse and its dangers, as they view them in the light of their experience with some three hundred cases. They advise conservatism in using the drug. It does not induce labor pains, but does increase their intensity and frequency after labor has started. A single dose may be used as an adjuvant in cases where pregnancy is interrupted by catheter or bag. Pituitrin should not be used early in the first stage, as its action is too transient. It is contraindicated when inertia is complete, on account of the danger of uterine rupture, also in cases of dystocia due to malposition or obstruction. The cervix must be dilatable, the presenting part engaged, and a general anesthetic at hand. The drug should not be used in cases where a sudden rise in blood-pressure may prove dangerous, and should be used with caution when the fetal heart sounds are feeble or irregular. [L. D. C.]

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

MAY 2, 1914.

1. *RUSSELL, F. F. *Antityphoid Vaccination in the Army During* 1913.
2. *CRILE, G. W. *Drainage versus Immediate Suture of the Common Duct.*
3. HENSON, G. E. *Man, the Principal Etiologic Factor in the Perpetuation of Malaria, with Special Reference to the Endemicity of the Disease in the Temperate Zone.*
4. *SMYTH, H. F. *The Cultivation of Tissue Cells in Vitro and Its Practical Application.*
5. MCLESTER, J. S. *Benzol in the Treatment of Polycythemia Rubra, with Report of a Case.*
6. DRUSKIN, S. J. *Extraperitoneal Cesarean Section, with Report of a Case.*
7. *CADWALADER, W. B. *A Comparison of the Onset and Character of the Apoplexy Caused by Cerebral Hemorrhage and by Vascular Occlusion.*
8. BROWN, W. L., AND BROWN, C. P. *Technic for Arthroplasty of the Shoulder-Joint.*
9. EISENDRATH, D. N. *The Effect of Injecting Collargol into the Renal Pelvis. Preliminary Note.*
10. CRISPIN, A. M. *Argyrism Following the Use of Collargol.*
11. BASSLER, A. *A New Technic of Roentgen Ray Examination for Early Diagnosis of Cancer of the Esophagus.*
12. WATKINS, T. J. *Treatment of Infected Wounds.*
13. UNDERHILL, E. C. *Report of a Case of Quinin Poisoning.*
14. HUNTOON, F. M. *A Simple and Reliable Method of Staining Spores.*
15. DRYER, J. L. *Boils.*

1. Russell states that the prophylactic antityphoid vaccination as used in the army has given almost absolute protection against typhoid without producing untoward effects of any character.

2. Crile advocates immediate closure of the common bile duct after removal of stone, instead of drainage, and believes if this is carefully done both morbidity and mortality will be lessened.

4. Smyth's article is a detailed and interesting review of the very important subject of the cultivation in vitro of tissue cells. It is an interesting article.

7. Cadwalader finds the following in regard to cerebral hemorrhages: Spontaneous intracerebral hemorrhages are apt to be large; very small hemorrhages are rare. Large hemorrhages are always fatal; small ones may be, and it seems probable that hemorrhages are always fatal whether large or small. When repeated attacks of apoplexy with hemiplegia occur in the same patient at different times, the final or fatal attack may be due either to softening or to hemorrhage, but the former non-fatal attack is invariably caused by vascular occlusion and softening, not by hemorrhage. [E. H. R.]

THE LANCET.

APRIL 18, 1914.

1. *SHAW, H. B. *Gangrene of the Lung.*
2. JONES, F. W. *The Morphology of the External Genitalia of the Mammals. Lecture II.*
3. *MAPOTHER, E., AND BEATON, T. *Intraspinous Treatment (Swift-Ellis) of General Paralysis: A Preliminary Note on Four Cases Treated by This Method.*
4. *LAYTON, T. B. *Tonsils and Adenoids in Children: a Plea for Fewer Operations.*
5. CUNNING, J. *Partial Gastrectomy for Gastric Ulcer Recurring after Gastro-jejunostomy.*
6. PANNETT, C. A. *Contribution to the Treatment of Duodenal Fistula, with the Report of a Successful Case.*
7. RISCHBRITH, H. *Traumatic Dislocation of the Hip-joint Occurring in a Boy Ten Years Old.*

8. MORTON, W. C. *Plea for an International Anatomical Terminology Based upon the B. N. A.*
9. WARNER, F. *Elementary Training of Children.*

1. This is an interesting clinical lecture on gangrene of the lung, in which the writer briefly discusses causation and presents 17 pathological specimens of this condition due to different causes. He describes the bacteriological flora, symptoms, importance of elastic tissue in the sputum, complications such as empyema and pneumothorax, prognosis, diagnosis and treatment.

3. The writers present four cases of general paralysis treated by the Swift-Ellis intraspinous method of injecting salvarsan. They do not feel encouraged from the results they have obtained up to the present time.

4. Layton urges a more conservative attitude in regard to operations for removal of tonsils and adenoids. Many such operations he believes to be unnecessary; others he believes do good but draw the physician's attention from the care of carious teeth and the general hygiene of the child. [J. B. H.]

BRITISH MEDICAL JOURNAL.

APRIL 18, 1914.

1. SHAW, H. B. *Some Diagnostic Failures.*
2. SAINT, C. F. M. *A Comparison of Inflammation and Tumor Formation.*
3. RADCLIFFE, F. *Three Cases of Traumatic Rupture of the Small Intestine.*
4. MADDOCK, C. *Rupture of the Duodenum Caused by a Blow.*
5. MORT S. *Condensation Obstruction in Relation to Pericolitis and Intestinal Kinking.*
6. RUSSELL, E., AND PARKER, G. *Fatal Case of Veronal Poisoning.*
7. MUNRO, J. M. H. *Veronal Poisoning.*
8. DICK, M. I. *A Case of Veronal Poisoning.*
9. BILLINGTON, W. *The Results of Nephropexy.*
10. PORTER, R. R. M. *Heart-block in a Case of Pneumonia.*
11. JERNS, J. J., AND MARTYN, V. C. *Two Cases of Diphtheria.*

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

No. 15. APRIL 14, 1914.

1. STEPHAN, R. *The Nature of Protective Ferments.*
2. ABDERHALDEN, E., HOLLE, H., AND STRAUSS, H. *The Action of Proteolytic Ferments in Blood Serum as Demonstrated by De-albuminization and by the Determination of Substances Reacting with Ninhydrin in Relation to the Filtrate Nitrogen (Preliminary Communication).*
3. ABDERHALDEN, E., AND PAQUIN, M. *The Action of Proteolytic Ferments in Blood Serum as Demonstrated by De-albuminization and by the Determination of Substances Reacting with Ninhydrin in Relation to the Filtrate Nitrogen. (Second Communication.)*
4. HEINEKE, H. *The Theory of the Mechanism of Rays and Especially of Their Period of Latency.*
5. MEYER-BETZ, F. *A Method for Illustrating the Liver in X-ray Plates and Its Clinical Significance.*
6. GOTTLIEB, R. *A Method for Determining the Potency of Digitalis Preparations on the Frog.*
7. POLANO, O. *Further Studies with Posterior-cervical Cesarian Sections.*
8. JESSEN, F. *Artificial Pneumothorax and Pleurolysis.*
9. *KLAUSNER, E. *Contraluesin in the Abortive Treatment of Syphilis.*
10. *V. SCHUBERT, E. *Intraspinous Neosalvarsan Treatment.*
11. *GENNERICH. *Intraspinous Salvarsan Treatment.*
12. NEUMAYER, V. *A Fatality after Neosalvarsan.*
13. DE FAVENTO, P. *A Case of Multiple Hemorrhages Following the Injection of Calomel.*
14. BERNER, K. *Absorption Phenomena in Abderhalden's Dialysis Method.*
15. DEETJEN H., AND FRÄNKEL, E. *The Effect of Concentration of the Ninhydrin Reaction.*
16. PONNDORF. *The Cure of Tuberculosis.*
17. REICHE, F. *Doctor Fritz Delius.*

9. Contraluesin is a proprietary combination prepared by Richter, of salicylic acid, sozojodol, quinine, corrosive sublimate, arsenic, phosphorus, and colloidal mercury. It is administered by intramuscular injection. Klausner has used this drug on 300 patients, making about 2000 injections. From this series he concludes that contraluesin reacts favorably on syphilis in all its stages and is of especial benefit in abortive treatment if combined with salvarsan. The preparation has no bad effects on the kidney, is nonirritating locally and has only trivial accessory effects.

10 and 11. V. Schubert and Gennerich describe a technic, which is essentially the same, for injecting salvarsan or neo-salvarsan into the spinal cord in a dilute solution of cerebro-spinal fluid or saline. Both authors believe that if this form of treatment is given properly as good results are obtained as with the Swift-Ellis method, without ill consequences, and with the advantage of greater simplicity. [R. F.]

BERLINER KLINISCHE WOCHENSCHRIFT.

No. 9. MARCH 2, 1914.

1. IZAR, G., AND NICOSIA, R. *Chemotherapy in Malaria.*
2. GINS, H. A. *A Contribution on Experimental Vaccines.*
3. *STERN, H. *On the Diagnosis of Hypothyroidism.*
4. HALPERN, M. *Morphologic Peculiarities of the Blood in Diabetes Mellitus.*
5. ENGEL. *The Feeding Cure (Weir Mitchell) in Childhood.*
6. *AUMANN AND STORP. *Experiments with "Grotan," a New Disinfectant.*
7. SIMON. *On the Occurrence of Multiple Symmetrical Lipomata.*
8. SCHULZ, F. C. R. *A Contribution to Serum Sickness. (Concluded.)*
9. ZÄNKER, W., AND SCHNABEL, K. *Modern Surgical Dressings.*

3. Stern describes, as a not uncommon finding in hypothyroidism, an edematous infiltration of the mucous membrane of the lower urinary tract, this condition giving rise to polyuria, tenesmus and strangury. Frequent and painful micturition may be the only subjective symptom of the condition in its early stages, and this, together with intractable enuresis, either in children or adults, should indicate cystoscopy and investigation of the functioning of the thyroid. These symptoms are relieved by the administration of thyroid extract.

6. Grotan is a complicated synthetic compound of cresol, chlorine and sodium. It is easily soluble in water, of an alkaline reaction, has no injurious action on skin, does not corrode instruments or destroy cloth, and experiments with guinea-pigs have shown that it has practically no poisonous action. The authors claim that in a 0.33% solution it rapidly kills the ordinary pyogenic organisms,—in a series of ten experiments with a solution of this strength the staphylococcus aureus was in each instance killed at the end of two minutes. It is put up in tablets, and for ordinary purposes four are used to a liter of water. If the authors' claims are true this should prove a useful and valuable disinfectant. [R. H. M.]

No. 10. MARCH 9, 1914.

1. v. ZEISSEL, M. *Observations on the Pathology of Syphilis and the Therapeutic Action of Salvarsan.*
2. *KLEMPERER, F. *Tubercle Bacilli in the Blood Stream.*
3. *HALLAS, E. A. *Shellac Concretions in the Stomach and Duodenum.*
4. UNNA, P. G., AND GAUS, O. *On the Chemistry of the Cell. IV. The Nissl Bodies.*
5. MÜNGER, A. *Precocious Puberty and Psychic Development.*
6. FAGINOLI, AND FISICHELLA, V. *Further Observations on the Intracutaneous Reaction of Noguchi's Luetin.*
7. BLEICHRÖDER. *Concerning the Increase in Miscarriages in the Berlin Municipal Hospitals.*
8. IZAR, G., AND NICOSIA, R. *Chemotherapy in Malaria.* (*Continued.*)
9. SÖDERBERGH, G. *A Supplement to "Some Observations on the Localization of Tumors of the Cord."*

2. The author has examined with great care the blood in a series of cases; in 24 with pulmonary tuberculosis he has in 21 isolated an acid-fast bacillus which he feels confident is the tubercle bacillus. He rules out carefully the possibility of contamination or artefacts. In 26 non-tuberculous patients he was unable to isolate any acid-fast bacilli whatever. As a result of his own work, and a careful review of the literature, he concludes that clinical, anatomical and experimental findings all make it in the highest degree probable that tubercle bacilli can at one time or another be found in the blood in all sorts of tuberculous cases.

3. The author reports two cases of alcoholics,—one a chair-maker and one a painter—both of whom died with gastric symptoms, and in each there was a huge shellac cast of the stomach, resulting from drinking polish or other articles of their trade.

[R. H. M.]

No. 11. MARCH 16, 1914.

ON THE 60TH BIRTHDAY OF PAUL EHRLICH AND EMIL VON BEHRING.

1. LAZARUS, A. *Paul Ehrlich.*
2. MUCH, H. *E. von Behring.*
3. RICHET, C. *P. Ehrlich; Medicine and Science.*
4. HEUBNER, O. *The Introduction of v. Behring's Diphtheria Antitoxin in the Clinic and in Private Practice.*
5. SALOMONSEN, C. J. *Memories of the Summer Term in Breslau in* 1877.
6. PEL, P. K. *Is Smoking Harmful?*
7. *LESSER, E. *Progress in the Treatment of Syphilis.*
8. v. ZEISSL. *The Treatment of Syphilis with Salvarsan and Mercury.*
9. CALMETTE, E. *On the Demonstration of Free Lipoids in the Serum by Activation with Cobra Venom, Especially in the Course of Tubercular Infection.*
10. BORDET, J., AND DELANGE, L. *The Question of the Rôle of Lipoids in the Coagulation of the Blood.*
11. BABES, V. *On the Occurrence of Meta-Chromatic Bodies in Acid-fast Bacilli.*
12. RÖMER, P. H. *Studies in the Bacteriology of Diphtheria.*
13. FLEXNER, S. *Contributions to the Epidemiology and Pathology of Poliomyelitis.*
14. CARREL, A. *Present Condition of a Two Years' Old Strain of Connective Tissue.*
15. NOGUCHI, H. *On the Application of Certain Cultivation Methods to the Study of Infectious Diseases.*
16. PAWLOW, J. P. *The Peculiar Instability of the Internal Inhibition of Certain Reflexes.*
17. MESTSCHERSKI, H., AND GRINTSCHAR, F. *A Case of Scleroma of the Nose and Pharynx Treated without Result by Vaccines, and Improved by Local Physical Measures.*
18. *LAACHE. *Acute Parotitis Following Abdominal Affections.*
19. *HEDINGER, E. *On the Importance of Pre-senile Involution of the Mammary Gland.*
20. JADASSOHN AND ROTHE, L. *On the Pathogenesis of Urticaria.*
21. EDINGER, L. *Pain Arising from Veins.*
22. MARAGLIANO, E. *Vaccination as a Preventive of Tuberculosis.*
23. v. WASSERMANN, A., AND LANGE, C. *On the Question of the Origin of the Reaction Products in the Serum Diagnosis of Lues.*
24. ROUX AND METCHNIKOFF. *The Work of Paul Ehrlich.*

7. Lesser believes in early and energetic treatment of syphilis by the combination of mercury and salvarsan in all forms of the disease, including tabes, though he says that good results have not as yet been attained in general paralysis. He gives 3 or 4 injections of salvarsan at intervals of 10 to 14 days. He thinks that in the acute secondary stage with general symptoms salvarsan may cause severe toxic symptoms, and should be preceded by several days of mercury alone. Intermittent treatment is advisable. He states that severe toxic symptoms from salvarsan undoubtedly arise in some cases,—Mentberger collected 87 cases, up to August, 1913, which had either very severe after-effects or else died.

18. Laache reports three interesting cases as follows: One, parotitis (right) in the course of an acute bleeding gastric ulcer; two, double parotitis associated with an acute appendix; and three, suppurative parotitis (left) with paralysis of the facial nerve, in a case of salpingitis. He mentions several theories, but can advance no good explanation of these associated conditions.

19. The author presents five cases of a large series of breasts, which were removed for constant and intractable pain, and which on pathological examination showed more or less complete senile atrophy of all the glandular elements, though none of the patients were over 44, and two were under 40. Histological examination revealed no definite cause for the pain. In conclusion he suggests that pre-senile involution must be considered a definite clinical and pathological condition, associated with severe pain, and hopes for a more extensive and detailed knowledge of the condition as soon as more cases are collected. [R. H. M.]

DEUTSCHES ARCHIV FÜR KLINISCHE MEDIZIN.

BAND 113. HEFT 3 AND 4. JANUARY 31, 1914.

1. ROEMHELD, L. *Concerning False Heart Block.*
2. BECKER, T. *Analysis of the Electrocardiogram by Means of Roentgenkymography.*
3. VEIL, W. H. *Clinical Importance of the Determination of Blood Concentration.*
4. ELFER, A., AND GEBER, H. *Nitrogen and Mineral Metabolism Changes in Scleroderma Diffusum.*
5. *KAHN, J. *Test of Heart Function.*
6. VON DEN VELDEN, R. *Clinical Experimental Work on the Knowledge of Temperature Lowering Substances.*
7. *DORNER, G. *Diagnosis of Uremia by Means of the Indican Determination in the Blood Serum, Transudates and Exudates.*
8. CARONIA, G. *Fever Curves in Youthful Leish-Maniasis.*
9. BAETGE, P. *Growth and Perforation of Aneurysm.*
10. BEHRENROTH, E. *Effect of Pituitary Extract upon Blood-Pressure in Man Besides Remarks on a Few Injection Experiments in Growing Animals.*
11. SCHULZ, E. *Intra-abdominal Pressure and Blood Distribution in Enteroptosis.*

5. Kahn has worked with the method for testing heart function that was instituted by Waldvogel. The method consists in noting the difference in systolic blood-pressure in the same patient between lying and standing. He has tried the test out on a good many normal and pathological conditions and has charted the cases to show the difference in pressure dependent upon the initial height of the pressure. He feels that this method is practical and of a good enough accuracy for clinical purposes. The chief feature is that it can be used in the office as well as in hospitals. The normal limits are a rise of from 5-15 mm. in pressures that are from 60-100 mm. In pressures from 100-130 mm. the normal variation is from an increase of 15 to a drop of 5 mm.

7. Dorner has studied the importance of indican in the blood and body fluids as a diagnostic aid in diseases of the kidney. The test is a simple one and only requires from 10-20 c.c. of blood. Considerable amount of indican in blood serum means marked uremia. If present in the blood it is also present in the fluids from the pleural cavity and other edematous fluids, but not in the cerebro-spinal fluid. The indican apparently does not play a factor in the toxicity of the blood serum in uremia. With large amounts of indican in the urine none will appear in the blood when no nephritis exists. The liver is not the only place in which urinary indican is formed. Apparently the kidneys take part in its formation. Usually the detection of this substance in the blood means that death is near, but some cases improve after the demonstration of it. [C. F., JR.]

DEUTSCHE ZEITSCHRIFT FÜR CHIRURGIE.

BAND 126. HEFT 5-6. FEBRUARY, 1914.

1. *HÄRTEL, F. *The Treatment of Trigeminal Neuralgia with Intracranial Alcohol Injections.*
2. THORBECKE, W. *The Familial Appearance of Intestinal Polyps.*
3. *FROMME, A. *Intestinal Invaginations and Spastic Ileus.*

1. On the basis of 25 personal cases, which he reports from Bier's clinic at Berlin, Härtel believes his method of treatment indicated in fresh cases, in chronic cases limited to individual nerve-twigs, and in severe, extensive, recurrent cases. Secondary neuralgias should be treated etiologically. In hysteric cases, the alcohol treatment is contraindicated.

3. Fromme reports from Stich's clinic at Göttingen 22 cases of acute and 10 of chronic intussusception associated with spastic ileus. There is an excellent alphabetic bibliography of 113 titles. [R. M. G.]

DIE THERAPIE DER GEGENWART.

FEBRUARY, 1914.

1. SALGE, B. *The Treatment of Rachitis.*
2. SCHMIDT, H. *Radium Therapy in General Practice.*
3. *JANSEN, W. *The Medicinal Treatment of Articular Rheumatism, Especially with Apyron, an Acetyl-Salicylic Acid Preparation Soluble in Water.*
4. OPITZ, E. *The Treatment of Sterility in the Female.*
5. FOCKE. *Digitalis in Uterine Bleeding.*
6. MEIDNER. *New Remedies: V. Animal Extracts.*

3. Jansen tested the value of apyron in articular rheumatism. He finds it a safe, palatable and easily soluble salicyl preparation, acting promptly as a diaphoretic, antipyretic and antineuralgic. On account of its solubility it is well suited to injection as well as to ingestion. [L. D. C.]

ANNALES DE L'INSTITUT PASTEUR.

NO. 3. MARCH, 1914.

1. DUMAS, J. *Studies upon the Staphylococcus Aureus. Relation between Animal and Human Staphylococcus Aureus.*
2. NICOLLE, M., AND CESARI, E. *Studies upon the Staphylococcus Aureus. Toxicity of the Strains Studied in the Preceding Work.*
3. *MANONÉLIAN, J. *Histological Studies upon the Salivary Glands in Rabies.*
4. *DANYSE, J. *Work in Chemical Therapy. Combinations of Silver Salts and Arsenic Compounds in the Treatment of Experimental Trypanosomiasis and Syphilis in Man.*
5. VENTRE, J. *Influence of Artificial and Natural Media on Different Species of Saccharomyces.*
6. D'HERELLE, I. *The Cocco Bacillus of the Grass-Hopper.*

3. Manonélian has been working at the Pasteur Institute on the presence of the typical negri bodies of rabies in the nerve ganglions of the salivary glands. As a result of his studies he concludes that these bodies exist in the cytoplasm of the nerve cells in these intraglandular ganglions, but that they never appear in the parenchymatous cells of the acini or of the excretory ducts. The acini undergo, however, profound changes with necrosis and absorption of the necrotic material by endothelial phagocytes so that the glands may be replaced by the phagocytic cells. The phagocytic cells are seen in the saliva.

4. Danyse has been endeavoring to improve the toxicity of chemical bodies for certain human parasites without increasing the toxicity for the human host. For this purpose he has been adding salts of silver to different arsenic compounds and studying the effect experimentally and in certain human cases, especially general paresis. He gives a list of the results of these different compounds upon several types of spirilla and trypanosomes, and also upon lesions from the treponema pallidum in men and in rabbits. He concludes that the addition of bromide and iodide of silver to dioxydiaminoarsenobenzol increases the antiseptic and curative properties of all three without augmenting their toxic properties. He feels that these chemical compounds are not the only antiseptic power at work, but that the phagocytic power of the host is most important in destroying the microbes. [C. F., JR.]

REVUE DE CHIRURGIE.

FEBRUARY, 1914.

1. QUÉNU, E., AND MATHIEU, P.. *Lithiasis of the Branches of Bifurcation of the Hepatic Duct.*
2. *DUVAL, P. *Conservation of the Superior (Fronto-Palpebral) Branches of the Facial, in Total Extirpation of the Parotid Other Than for Cancer.*
3. MORESTIN, M. H. *Treatment of Extensive, Diffuse, or Pulsating Angiomata of the Face by Vascular Ligatures and Formolated Fixation.*
4. MOTY, F. *Accidents of the Wisdom Tooth.*
5. BRULÉ, M. *The Sterilization of Water by Ultra-Violet Rays and Its Application in Surgical Practise.*
6. WALTER-SULLIS, J. *The Liver in Appendicitis. (To be continued.)*

2. Duval describes, and illustrates with four anatomic plates, his operative technic in total removal of the parotid, and reports a case whose photographs represent the advantage of saving the upper of the three principal branches of the facial nerve at the *pes anserinus.* [R. M. G.]

Miscellany.

AN ACT TO CREATE A STATE DEPARTMENT OF HEALTH AND TO AMEND THE PUBLIC HEALTH LAWS.

The following is Governor Walsh's message transmitting to the legislature his bill for the reorganization of the State Board of Health.

To the Honorable Senate and House of Representatives.

In my inaugural address I emphasized the fact that in the multitude of legislative matters which come before the State Legislature, there are none of greater significance or importance than those which are planned with the purpose of protecting the public health, for upon a sound, healthful and vigorous population depend in the greatest measure the prosperity, safety and welfare of the Commonwealth.

There is no greater service than the prevention of sickness and premature death, with all its concomitant sorrows and miseries. The human body is the most wonderful machine that is known and the maintenance of this delicate mechanism in full vigor, for its allotted time, is the end for which health officers, physicians, social workers and others are striving. The government should lead in this great work.

Most legislation is directed towards objects which interest only a certain percentage of the population of the State. Public health legislation is necessarily of interest to every man, woman and child in the Commonwealth. Even recognizing the wonderful advance in health conservation which has taken place in the past few decades, it is still obvious that preventable disease is the main cause of death. Massachusetts may well point with pride to its early recognition of the public health problems and the creation, in consequence, of a State Board of Health.

Without detracting from the past accomplishments of the State Board of Health, it has become obvious to many, including those who are in a position to recognize the State Board of Health's service, that the Board does not possess the necessary organization to cope with the present health problems of the Commonwealth. In a word it is in some ways seriously handicapped in being able to reach the highest efficiency that the people have reason to expect of a department of health.

In recent years tremendous strides have been made in public health work, yet Massachusetts is conducting this work under administrative machinery provided many years ago.

Other States have recognized defects similar to our own, and as a result we note the passage of acts in various States reorganizing the State health service along the most modern and effective lines.

Massachusetts must not lag in the forward march and in order that the citizens of the Commonwealth might have the greatest possible protection I have deemed it my highest duty to suggest a reorganization of the public health activities of the State.

The time has come in Massachusetts for a salaried Health Commissioner to superintend that work of the government which deals with public health administration. He should be a man who will devote his whole time, strength and energy to this problem, and should be a man "skilled in science and experienced in public health administration."

The accompanying bill is designed to give Massachusetts a most effective type of public health organization. It has been drawn up after consultation with experts from the United States Public Health Service, the Commissioner of Health of New York State, and many others, qualified by experience and training, who have given freely of their advice, in order that the proposed legislation might represent the very best thought in this vital matter. This proposed legislation calls for the abolition of the State Board of Health and requires the appointment of a State Health Commissioner who shall be directly responsible to the Governor. A Public Health Council is created, but following out modern beliefs in effective administrative work, this council has no administrative or executive powers.

Provision is also made in this bill that the district health officers be required to give their entire services to the Commonwealth and that the present unsatisfactory arrangement be discontinued, —namely, health officers half-paid and expected merely to give such time as they choose in their respective districts to this work.

Your especial attention is invited to the creation of three new divisions, one dealing with infant and child hygiene, the second with communicable diseases, and the third an administrative department for educational and publicity work. The need of special activities in the prevention of infant mortality is evidenced by the fact that in Massachusetts in 1912, out of a total of 52,250 deaths, 12,273 were under two years of age. It is well recognized that many of these infant deaths are preventable, and an active division of the State Department of Health should do much to cut down this enormous wastage of life.

Similarly the tuberculosis problem is of great magnitude, even though noteworthy decreases in its mortality rate have been apparent in the past; 5,151 citizens of of Massachusetts succumbed to this disease alone in 1912, or almost 10 per cent. of the total mortality.

Modern sanitary science recognizes that a great deal of preventable disease cannot be wiped out by the introduction of water purification plants or the enforcement of milk pasteurization, or similar public acts, but requires the *individual* cooperation of all persons. This makes it necessary that proper publicity work, especially by the State cooperating with local health authorities, be undertaken to bring before the people the simple facts, which they must know if they are to avoid contracting an unnecessary sickness. This important function is required in the proposed reorganization.

There should be no half measures in the fight for better public health conditions. This is a clear case where the best is none too good and it is believed that the passage of this bill will make it possible for Massachusetts to adopt all the latest modern methods of health conservation and possess the strongest and best Health Department in the country. I know of no greater service that this Legislature can render to those who have delegated to it the power to contribute to their happiness and welfare through the agencies and activities of government, than by adopting the proposed legislation.

Neither partisanship nor personal considerations can be permitted to move our minds when the well-being, the health, the very life of our people are at stake. DAVID I. WALSH.

Be it enacted by the Senate and House of Representatives, etc., as follows:

Section 1. There is hereby created a State Department of Health which shall exercise the powers and perform the duties now conferred and imposed by law upon the State Board of Health and Section 1 of Chapter 75 of the Revised Laws is hereby repealed. The State Department of Health shall consist of a Commissioner of Health and a Public Health Council. There shall also be directors of divisions district health officers, and other employees as hereinafter provided.

Section 2. The Commissioner of Health shall be appointed by the governor, by and with the consent of the executive council, and shall be skilled in sanitary science and experienced in public health administration. The term of office of the Commissioner of Health shall be five years; he shall receive an annual salary of seventy-five hundred dollars and his necessary traveling expenses, and shall devote his whole time to his official duties. The Commissioner of Health shall be the administrative head of the State Department of Health. His duties shall be to administer the laws relative to health and sanitation and the regulations of the Department; to prepare rules and regulations for the consideration of the Public Health Council; to appoint and remove directors of divisions, district health officers, inspectors, and other necessary employees, and fix their compensation within the limitations of appropriations therefor. Directors of divisions and district health officers shall be exempt from civil service regulations. The Commissioner of Health shall further submit annually to the Public Health Council a report with recommendations as to needed health laws, shall perform all executive duties now required by law of the State Board of Health, and other duties incident to his position as chief executive officer. He may direct any executive officer or employee of the State Department of Health to assist in the study, suppression or prevention of disease in any part of the Commonwealth.

Section 3. The Public Health Council shall consist of the Commissioner of Health and six members, hereinafter called the appointive members, at least three of whom shall be physicians to be appointed by the Governor, by and with the advice and consent of the Council. Of the appointive members first appointed, two shall hold office until May 1, 1915, two until May 1, 1916, and two until May 1, 1917, and the terms of office of the appointive members thereafter appointed, except to fill vacancies, shall be three years. Vacancies shall be filled by appointment of the Governor and Council for the unexpired term. The Public Health Council shall meet at least once in each month, and at such other times as they shall determine by their rules or upon the request of any two members. The appointive members shall receive $10. per diem while in conference and their necessary traveling expenses while in the performance of official duties. It shall be the duty of the Public Health Council to make and promulgate rules and regulations; take evidence in appeals; consider plans and appointments required by law; hold hearings; define the qualifications of local health authorities; submit annually to the Legislature through the Governor a report, including recommendations as to needed health laws; and to discharge other duties required by law; but it shall have no administrative or executive functions. The Public Health Council shall have power, by the affirmative vote of a majority of its members, to establish, and from time to time amend rules and regulations under the public health laws, the enforcement of which devolve on the State Department of Health. Every regulation adopted by the Public Health Council shall state the date on which it takes effect, and a copy thereof duly signed by the Commissioner of Health shall be filed in the office of the Secretary of the Commonwealth, and furthermore shall be published in such manner as the Public Health Council may determine. Rules and regulations so promulgated shall have the force and effect of law, and any violation thereof may be declared to be a misdemeanor, and punished by a fine of not less than one dollar nor more than one hundred dollars, or by imprisonment in the house of correction for a term not exceeding thirty days, or both. Upon request of the Public Health Council, the Governor is authorized to require the District Police to assist the State Department of Health in enforcing its rules and regulations.

Section 4. There shall be in the State Department of Health the following divisions, together with such other divisions as the Commissioner of Health may from time to time determine:—

1. Division of Administration.
2. Division of Communicable Diseases.
3. Division of Sanitary Engineering.
4. Division of Food and Drugs.
5. Division of Laboratories.
6. Division of Child Welfare.

The Commissioner of Health shall appoint and may remove, with the approval of the Public Health Council, a director to take charge of each division, and shall prescribe the duties of each division. The compensation of directors of divisions shall be fixed by the Commissioner of Health, within the limits of appropriations therefor, and subject to the approval of the Governor and Council.

Section 5. The Commissioner of Health shall, from time to time, divide the state into eight sanitary districts, and shall appoint a district health officer for each district, with the approval of the Public Health Council, at a compensation not exceeding $3500 per annum and necessary traveling expenses, and may remove the said officer. Said district health officers shall not engage in any other occupation and shall give their entire time to the performance of their duties. The Commissioner of Health may from time to time order two or more of said district health officers to work in one sanitary district in order to study, suppress or prevent disease. Each district health officer shall, under the direction of the Commissioner of Health, perform the following duties:—

1. Keep himself informed as to the work of each local health authority within his sanitary district;

2. Aid each local health authority within his sanitary district in the performance of his duties, and particularly upon the appearance of any contagious or infectious disease;

3. Assist each local health authority within his sanitary district in making an annual sanitary survey of the territory within his jurisdiction, and in maintaining therein a continuous sanitary supervision;

4. Call together the local health officers within his district or any portion of it from time to time for conference;

5. Adjust questions of jurisdiction arising between local health officers within his district;

6. Study the causes of excessive mortality or morbidity from any disease in any portion of his district;

7. Promote efficient registration of births, deaths and notifiable diseases;

8. Inspect, from time to time, institutions, schools, public conveyances, and labor camps within his district, and enforce public health laws and regulations in relation thereto;

9. Endeavor to enlist the cooperation of all physicians and welfare organizations within his district in the improvement of the public health therein:

10. Promote the information of the general public in all matters pertaining to the public health;

11. Act as the representative of the Commissioner of Health, and under his direction, secure the enforcement within his district of the public health laws and regulations.

Section 6. When in the opinion of the Public Health Council any local health authority shall fail or refuse to enforce the laws and regulations to prevent the spread of contagious or infectious disease declared by the Public Health Council to be dangerous to the public health, or when, in the opinion of said Council, a public health emergency exists, the Commissioner of Health may enforce the rules and regulations of the State Department of Health within the territorial jurisdiction of such local health authorities, and for that purpose shall have, and may exercise all the powers given by statutes to local health authorities; all expenses so incurred to be a charge against the cities and towns concerned.

Section 7. Towns and cities may cooperate for promotion of the public health, either by special vote or by vote of their respective boards of health. They may participate in the employment of trained health officers or other agents, and in the installation and maintenance of a common laboratory or other equipment. Funds may be appropriated and disbursed for this purpose either by a special vote of a city or town, or by vote of a board of health of a city or town from appropriations or other funds at its disposal. Whenever two or more towns shall thus combine or cooperate for more efficient health service, and shall appropriate a sum or sums of money for such joint or cooperative action, a sum equal to two-fifths of the total amount contributed by the cooperating towns shall be paid over and added thereto from the Treasury of the Commonwealth; provided, that the general plan of cooperation, as well as the principal health officer, executive agent, or laboratory director employed by the cooperating towns, shall have been approved annually by the Public Health Council; and *provided, further,* that no sum so paid to any such group of cooperating towns shall exceed $1000, in any one year.

Section 8. An annual conference of health officers shall be held under the supervision of the Commissioner of Health, and necessary expenses of health officers attending said sanitary conference shall be paid by individual boards of health respectively, or by the selectmen acting as boards of health.

Section 9. For carrying out the purposes of this act there shall be appropriated for the purposes of the State Department of Health, over and above the amount already appropriated for the State Board of Health for the year 1914, the sum of

Section 10. All acts and parts of acts inconsistent with this act are hereby repealed.

AN ACT TO REORGANIZE THE MASSACHUSETTS STATE BOARD OF HEALTH.

In response to an invitation extended by the Massachusetts Medical Society, ninety physicians of the Massachusetts Medical Society, the Homeopathic Medical Society and the Massachusetts Eclectic Medical Society, met at the Boston Medical Library, May 15, 1914, at 3 p.m., to discuss the act to reorganize the Massachusetts State Board of Health (House No. 2590) introduced into the Legislature May 12. Representatives from at least ten counties of the state were present.

The meeting organized by the election of Dr. W. P. Bowers of Clinton, chairman, and Dr. W. L. Burrage of Boston, secretary.

Governor Walsh explained the provisions of the act at length, and Dr. M. J. Rosenau, a member of the State Board of Health, who drafted the bill, sketched its chief purposes. Twelve different physicians present took part in the discussion and the Governor and Dr. E. H. Bigelow and Dr. Rosenau answered questions. Dr. Trowbridge of Worcester proposed the following amendment to Section 5, line 3: Insert after the word *officer,* "Who shall be a physician in good standing." On motion of Dr. Duggan of Worcester it was *Voted:* That the meeting indorses the recommendations and the bill of Governor Walsh as to the creation of a State Department of Health (House Bill No. 2590) with the amendment above noted. The vote was unanimous.

Adjourned at 4.53 p.m.

Walter L. Burrage,
Secretary of the Meeting.

ADDRESS TO DR. WALCOTT.

The following is the text of the address presented to Dr. Walcott on his retirement from the State Board of Health.

To Henry P. Walcott, M.D., LL.D., Chairman, Massachusetts State Board of Health, from Twenty-two Hundred Members of the Medical Profession of the State, Greeting:

Sir: On the 19th day of May, 1914, your term as a member of the State Board of Health ends, and we understand you are not a candidate for reappointment.

Such an occasion cannot be allowed to pass unnoticed, at least by those citizens who as a class should be most competent to gauge the value of such services to the State as yours have been.

The best appraisal of those services is the mention of some of them, with a brief statement of your relations to the Board.

Your connection with the Board began in 1880, 33 years ago, when, after ten years of independent existence, it had been merged with the conjoined Board of Lunacy and Charity, and you were unanimously elected its Health Officer. At this time, you served on a commission for the sanitary im-

provement of the Blackstone river, a precursor of your subsequent labors on similar problems.

In 1886, by an act of the legislature, the Board of Health once more entered upon an independent existence. You were appointed a member for a seven years' term by Governor Robinson, a Republican, with the advice and consent of the senate, and became the chairman. You have since been reappointed three times for terms of seven years: once by Governor Russell, a Democrat, in 1893; once by Governor Crane, Republican, in 1900; and once by Governor Guild, Republican, in 1907. Since 1886, you have always continued as chairman of the Board.

Early in 1894, you began to consider the advisability of establishing a laboratory for the free production and distribution of diphtheria antitoxin; and such curative serum was actually distributed early in 1895, being the first so distributed in any state. This was made possible through the cooperation of Harvard University, secured by your influence, at the Bussey Institution, and was carried on for nine years—during this time as well as later under the personal direction of Dr. Theobald Smith—until 1903, when the legislature enacted a law authorizing the State Board of Health to produce and distribute antitoxin and vaccine virus. Again through your influence, a laboratory was built on the grounds of the Bussey Institution where the preparation of antitoxin and animal vaccine was carried on together.

Within the last four years, you have served as chairman of two State Commissions appointed to consider various important tuberculosis problems: one in 1910, and one in 1912. Reports were made to the legislature and printed as public documents.

It is impossible to separate your work in connection with the Board of Health from that in connection with the North and South Metropolitan Sewerage Systems, the Charles River Valley System, the Charles River estuary improvement, the Metropolitan Water Supply, and numerous other similar problems of perhaps secondary importance, such as the improvement of the Neponset River Valley, of the Concord and Sudbury Rivers, of the sanitary conditions as respect water supply, sewerage and sewage disposal of many other cities and towns which have been devised by the committee on water supply and sewerage of the Board of Health, of which Mr. Hiram F. Mills is chairman, and carried out in connection with its recommendations under your chairmanship of the Board.

Since the reëstablishment of the State Board of Health in 1886, under your chairmanship, it has been the custom of the legislature to refer all important sanitary questions to that Board for investigation and advice, instead of creating special commissions, as obtains in many states. This custom, under your wise administration, has doubtless saved much money to the State and, at the same time, secured sanitary improvements recognized in all civilized countries as the best of their class.

The investigations and recommendations of the Board have commended themselves to the legislature and in general have been carried out ultimately as presented.

From 1886 to the present time, you have been constantly and steadfastly facing these great and grave problems. Since 1895, when the State Board of Health made its report to the legislature, presenting a plan for the water supply of the City of Boston and the surrounding cities and towns, have been added to your responsibilities those of a commissionership on the Metropolitan Water Board. You have borne the responsibilities both of recommendation and of execution.

You have succeeded on the Board of Health such men as Henry I. Bowditch, George S. Derby and Charles F. Folsom, whose services to State medicine were widely known and recognized, and honorable to Massachusetts.

You have met the responsibilities then assumed with such wisdom, discretion and rare modesty, as to make the task of your successor who would uphold the standards bequeathed to him a difficult one indeed.

Correspondence.

ANOTHER LESSON IN ANTI-VACCINATION.

BOSTON, May 11, 1914.

Mr. Editor: The recent experience of Niagara Falls, a tourist city of about 35,000 inhabitants, is interesting as showing the harm that a persistent, fanatical anti-vaccinationist is capable of doing even in these enlightened days. Being refused admission to the local press, this physician has been publishing and distributing pamphlets decrying vaccination for years in the untruthful, exaggerated manner peculiar to this cult. About 90 per cent. of the inhabitants had become lukewarm toward vaccination and about 60 per cent. were distinctly opposed to it. Now for the results.

In 1912 smallpox made its appearance in the city in a sporadic form. Little attention was paid to the situation until late in 1913, when the epidemic blazed up and became so serious that Buffalo and other adjoining towns began to interfere. Business was affected, which is one of the most potent factors in these conditions.

As the local authorities could not or would not take the necessary measures to stop the epidemic, the Health Commissioner of the state, Dr. Hermann M. Biggs, was called upon to take a hand in the situation. The authorities were given to understand that unless they took the usual means immediately to stamp out the disease, the city would be placed under quarantine. The commissioners' suggestions were accepted and carried out. The epidemic was under control in a short time.

During 1913 the cities of New York, Rochester and Buffalo, with 6,000,000 people had 39 cases of smallpox. Niagara Falls had 196. The law excluding unvaccinated children from the public schools is rigidly enforced in the three cities above noted. The aforesaid anti-vaccinationist had made his brags that Niagara Falls had a larger percentage of unvaccinated citizens than any other city in the country. The result of this epidemic would seem to justfy his claim.

When the city took hold of the situation in an intelligent manner, the people tumbled over each other to get vaccinated. About 22,000 were vaccinated in a short time. Churches, theatres, libraries and all other places of public assemblage were closed. The schools were not closed, but all unvaccinated children were excluded. Inspectors were sent to every house to ferret out concealed cases. The sick were isolated. The usual results of the proper management of these epidemics were soon in evidence and the danger was over. The epidemic was easily preventable. The city has only itself to blame for the prevalence of the scourge. It is to be hoped that the lesson will not be forgotten in a hurry. Massachusetts may well take warning from this fresh example of neglecting plain and safe measures of protection against this loathsome disease.

Very truly yours,

GEORGE W. GAY, M.D.